























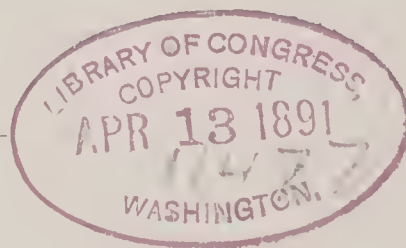


Third Edition.

—1891—

# Central Electric Company,

CHICAGO.



## ILLUSTRATED CATALOGUE.

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CENTRAL ELECTRIC COMPANY,  
1891.

OFFICES AND WAREHOUSES,

*116 and 118 Franklin Street,*

CHICAGO, ILL.

U. S. A.



## TO PURCHASERS.

We take pleasure in presenting this Catalogue of General Electrical Supplies, which we have endeavored to make complete in every department.

By using the Trade Words to describe the various articles needed, when ordering by wire or mail, purchasers will insure themselves against errors in description, and assist us in filling their orders correctly. They will also save considerable expense when using the telegraph.

Prices are subject to change without notice.

We charge for boxing and cartage at cost.

We use the greatest care in packing, and our liability for breakage ceases when we have delivered goods to the carrier and received a receipt therefor. We shall, however, be glad to furnish our customers any assistance in our power to obtain a settlement in case of loss of or damage to goods in transit.

In ordering, please say how goods are to be shipped, and, if by express or freight, state which line is preferred. If no preference is given, we will use our best judgment in the interest of our patrons.

Orders from persons unknown to us should be accompanied by a draft covering the amount of the bill and express or freight charges both ways to insure us against loss in case the goods are not accepted. Small orders to be filled by mail should be accompanied by money or stamps enough to pay postage.







## THE TRADE WORD.

Much trouble and considerable expense, where the telegraph is used, can be saved by using the TRADE WORD to describe articles wanted. The word describes everything on the line to its right, and its use is easily understood.

EXAMPLE: "Express one gross two and quarter inch Shade Holders for Thomson-Houston Socket" can be rendered, "Express one gross Advantage." By turning to page 37 it will be seen that the word *Advantage* means all that ten words are required to describe in the telegram.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## MALE SOCKET HOOK.



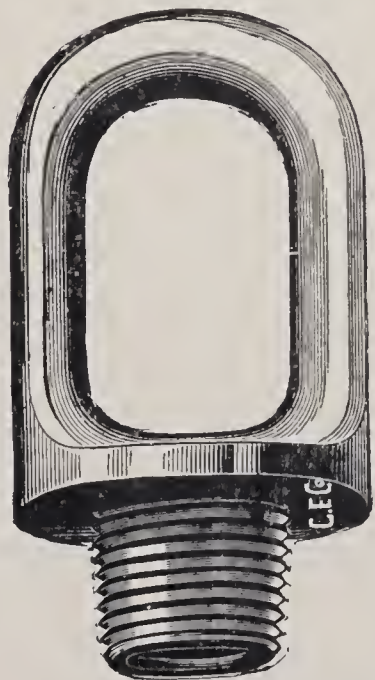
For suspending chandeliers, also used for detachable lamps connected up with flexible cord.

Trade Word.	Size.	Price.
Aback.....	For $\frac{1}{4}$ inch pipe	.....Per Doz., \$5.00
Abacus.....	“ $\frac{3}{8}$ “	
Abaft.....	“ $\frac{1}{2}$ “	

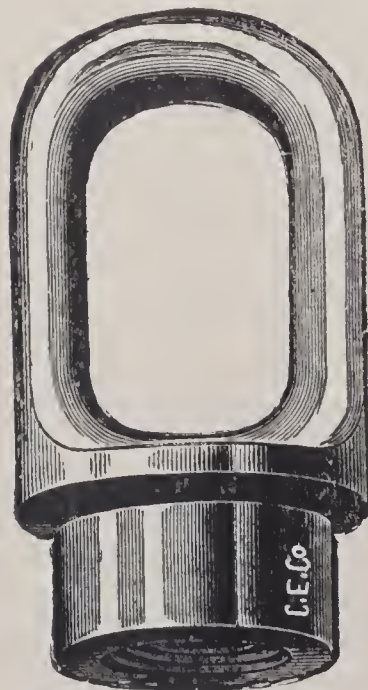
## LAMP LOOPS.

For suspending large incandescent lamps, with either male or female threads.

MALE.



FEMALE.



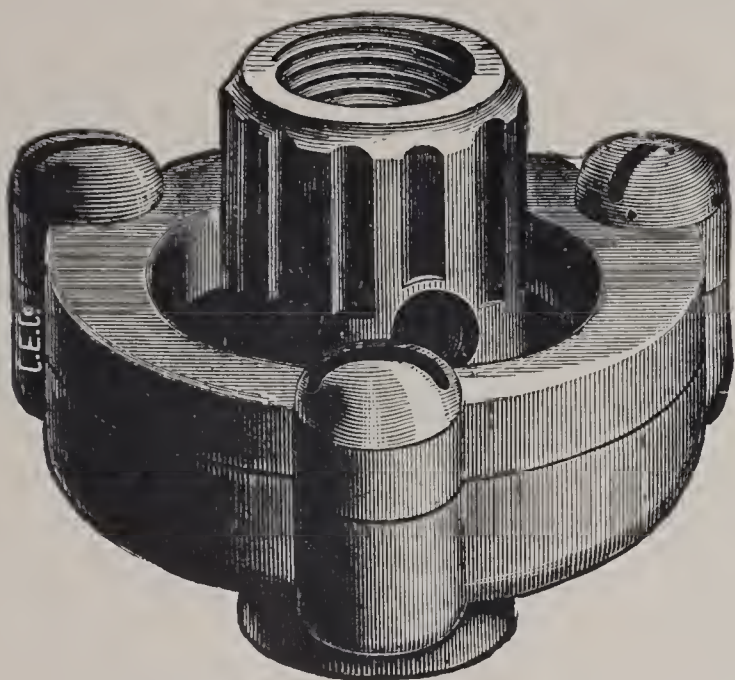
Trade Word.	Price.	Trade Word.	Price.
Abandon.....	Per Doz., \$5.00	Abandoned.....	Per Doz., \$5.00

For Explanation of Trade Word see page 4.



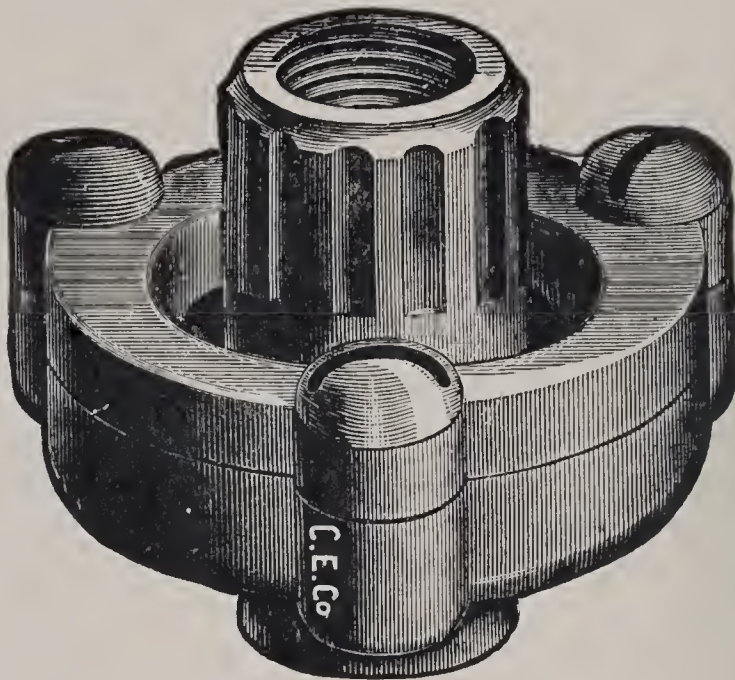
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

CHANDELIER INSULATING JOINTS.



FEMALE, BOTH ENDS.

For Electric Light Fixtures only.



FEMALE, BOTH ENDS.

For Combination Gas and Electric Fixtures.

Trade Word.	Size.	Price.	Trade Word.	Size.	Price.
Abandoner.	$\frac{3}{8}$ x $\frac{1}{8}$	..... Each, \$1.50	Abet.	$\frac{3}{8}$ x $\frac{1}{8}$	..... Each, \$1.50
Abase.	$\frac{3}{8}$ x $\frac{1}{4}$		Abetment.	$\frac{3}{8}$ x $\frac{1}{4}$	
Abasement.	$\frac{3}{8}$ x $\frac{3}{8}$		Abeyance.	$\frac{3}{8}$ x $\frac{3}{8}$	
Abash.	$\frac{1}{2}$ x $\frac{1}{8}$	..... Each, 2.00	Abhor	$\frac{1}{2}$ x $\frac{1}{8}$	..... Each, 2.00
Abate.	$\frac{1}{2}$ x $\frac{1}{4}$		Abhorred.	$\frac{1}{2}$ x $\frac{1}{4}$	
Abated.	$\frac{1}{2}$ x $\frac{3}{8}$		Abhorrence.	$\frac{1}{2}$ x $\frac{3}{8}$	
Abattoir.	$\frac{1}{2}$ x $\frac{1}{2}$		Abhorring.	$\frac{1}{2}$ x $\frac{1}{2}$	
Abbacy.	$\frac{3}{4}$ x $\frac{1}{8}$	..... Each, 3.00	Abide.	$\frac{3}{4}$ x $\frac{1}{8}$	..... Each, 3.00
Abbess.	$\frac{3}{4}$ x $\frac{1}{4}$		Abiding.	$\frac{3}{4}$ x $\frac{1}{4}$	
Abbey.	$\frac{3}{4}$ x $\frac{3}{8}$		Ability.	$\frac{3}{4}$ x $\frac{3}{8}$	
Abbot.	$\frac{3}{4}$ x $\frac{1}{2}$		Abject.	$\frac{3}{4}$ x $\frac{1}{2}$	
Abbreviate.	$\frac{3}{4}$ x $\frac{3}{4}$		Abjection.	$\frac{3}{4}$ x $\frac{3}{4}$	
Abdicate.	1 x $\frac{1}{2}$	..... Each, 4.25	Abjectly.	1 x $\frac{1}{2}$	..... Each, 4.25
Abdicating.	1 x $\frac{3}{4}$		Abjectness.	1 x $\frac{3}{4}$	
Abdication.	1 x 1		Abjure.	1 x 1	
Abdomen.	1 x $1\frac{1}{4}$		Ablation.	1 x $1\frac{1}{4}$	
Abduce.	$1\frac{1}{4}$ x $1\frac{1}{4}$	..... Each, 6.50	Ablative.	$1\frac{1}{4}$ x $1\frac{1}{4}$	..... Each, 6.00
Abduction.	$1\frac{1}{2}$ x $1\frac{1}{2}$	..... " 12.00	Ablaze.	$1\frac{1}{2}$ x $1\frac{1}{2}$	..... " 12.00
Aberrance.	2 x 2	..... " 14.50	Able.	2 x 2	..... " 14.50

REDUCERS.

FOR FITTING ELECTROLIERS TO GAS PIPES.

(IRON.)

Trade Word.	Size.	Price.
Abluent.	$\frac{1}{8}$ x $\frac{1}{4}$ in., iron thread.....	Each, \$0.08
Ablute	$\frac{1}{8}$ x $\frac{3}{8}$ " " .....	" .08

For Explanation of Trade Word see page 4.

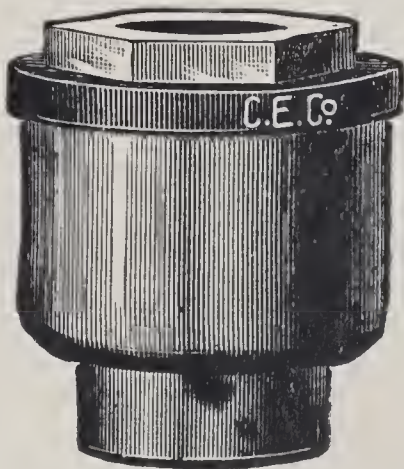


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

BRACKET INSULATING JOINT.

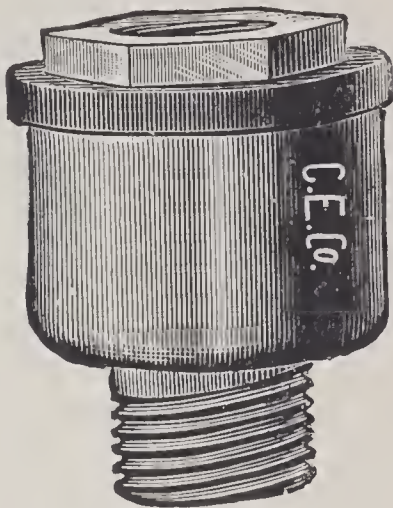
FOR COMBINATION GAS AND ELECTRIC FIXTURES.

FEMALE BOTH ENDS.



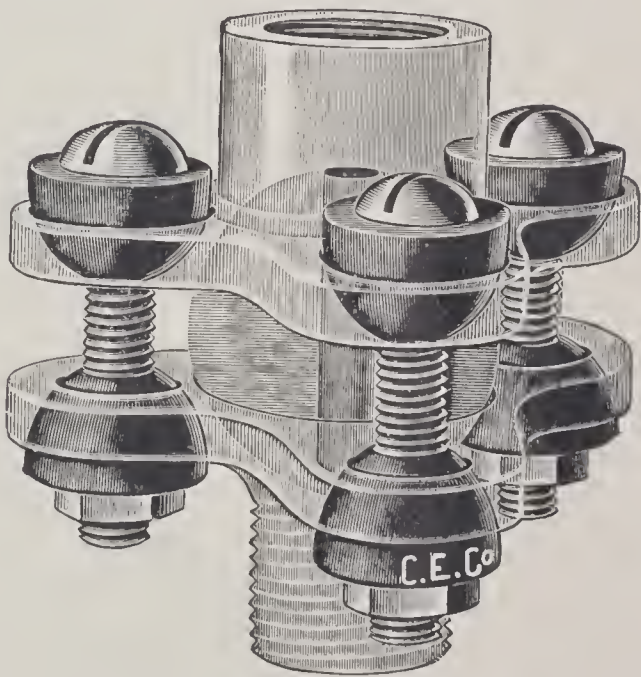
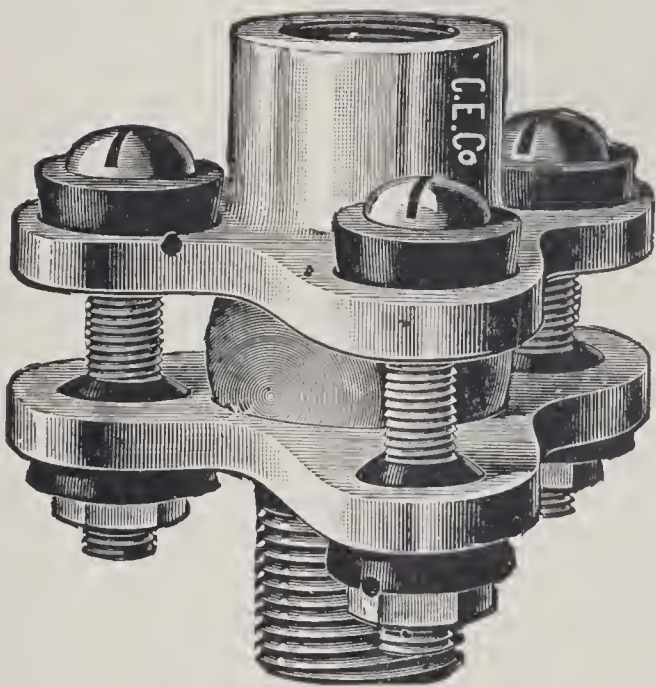
Trade Word.	Size.	Price.
Ablution.	$\frac{3}{8}$ x $\frac{1}{8}$	.....each, \$1.00
Aby.	$\frac{3}{8}$ x $\frac{1}{4}$	....." 1.00
Abnegate.	$\frac{3}{8}$ x $\frac{3}{8}$	....." 1.00

MALE AND FEMALE.



Trade Word.	Size.	Price.
Abnormal.	$\frac{3}{8}$ x $\frac{1}{8}$	.....each, \$1.00
Aboard.	$\frac{3}{8}$ x $\frac{1}{4}$	....." 1.00
Abode.	$\frac{3}{8}$ x $\frac{3}{8}$	....." 1.00

THE HERMAN INSULATING JOINT.



This joint, as shown in the cut, consists of two flanges, recessed to admit an insulating rubber ball. The connecting bolts are insulated in half-round hard-rubber washers.

This joint has the following advantages :

It admits of the perfect alignment of the fixture, as it can be adjusted to any angle within ten degrees.

The flanges of each size are interchangeable : No. 1 size has  $\frac{1}{4}$  or  $\frac{3}{8}$  male or female thread ; No. 2 size has  $\frac{3}{8}$  or  $\frac{1}{2}$  male or female thread. Any required combination of male or female threads can be made by substitution.

It can be attached with the tools ordinarily carried by a wireman. Pipe tongs are not required.

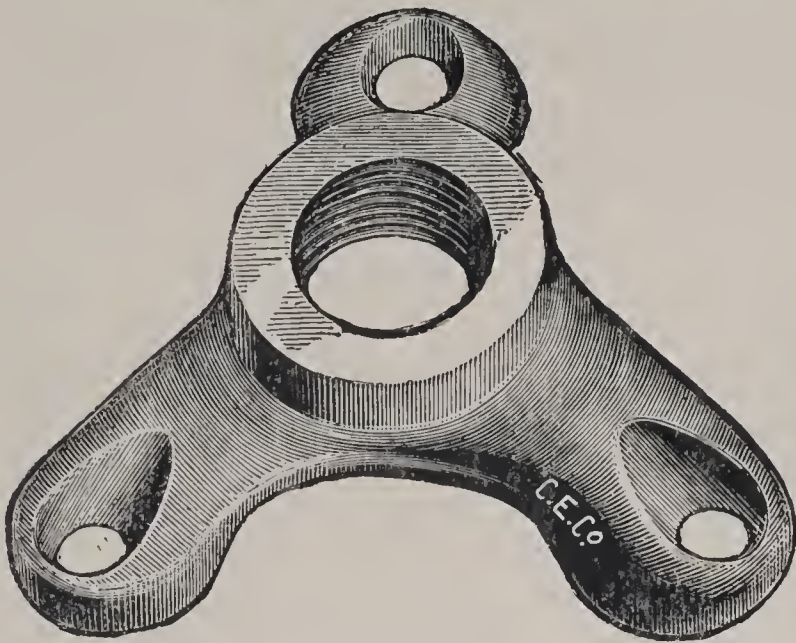
Trade Word.	Size.	Price.
Abolish.....	No. 1. $\frac{1}{4}$ or $\frac{3}{8}$ -inch male or female thread.....	each \$2.00
Abolition.....	" 2. $\frac{3}{8}$ or $\frac{1}{2}$ " " " " .....	" 2.50

For Explanation of Trade Word see page 4.



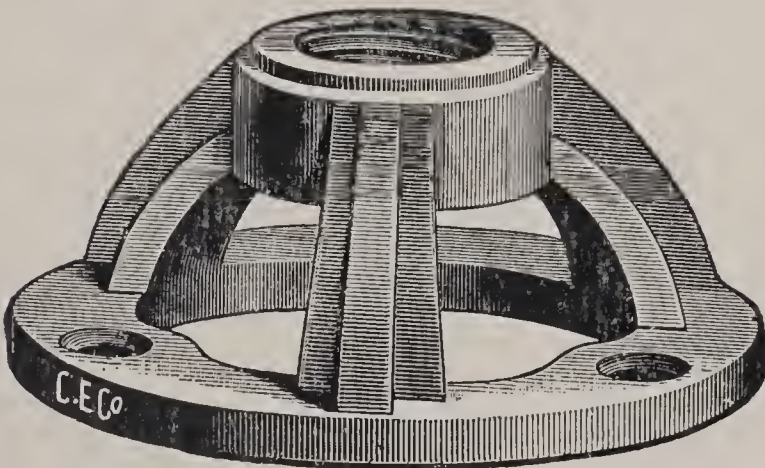
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

CLOVER LEAF PIPE BASE.



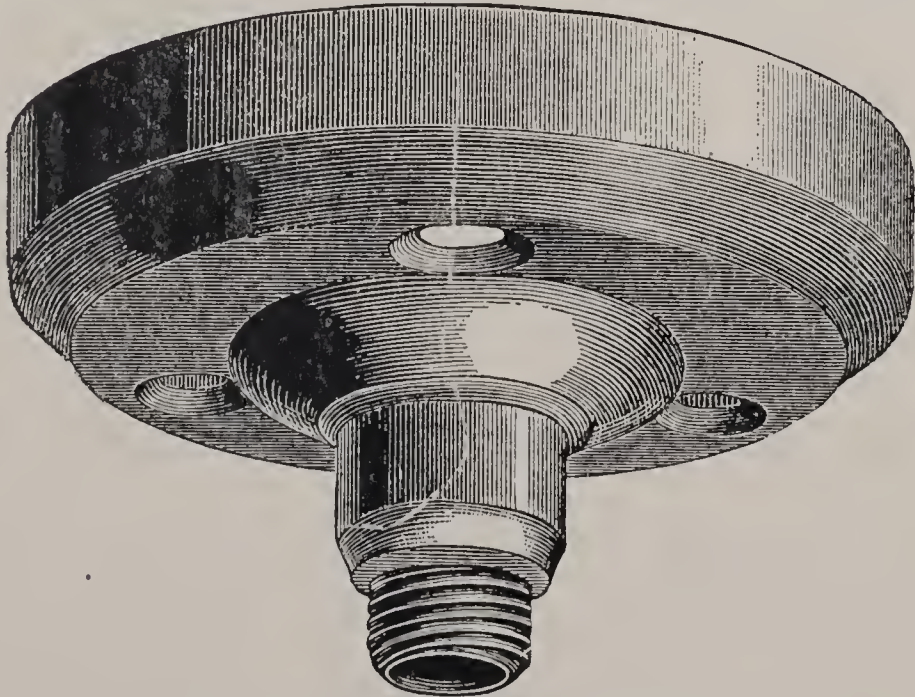
Trade Word.	Size.	Price.
Abominable.	4 in. spread, tapped $\frac{1}{4}$ in	each, \$0.16
Abominate.	4 " " " $\frac{3}{8}$ "	" .16
Aboriginal.	$2\frac{3}{4}$ " " " $\frac{1}{4}$ "	" .15
Abortion.	$2\frac{3}{4}$ " " " $\frac{3}{8}$ "	" .15

WALL FLANGE.



Trade Word.	Size.	Price.
Abortive.	Tapped $\frac{1}{4}$ in.	each, \$0.16
Abound.	" $\frac{3}{8}$ "	" .16

BRASS CEILING FLANGE FOR ELECTROLIERS.



MALE THREAD, EXTRA HEAVY CAST.  
(DIAMETER 3 INCHES).

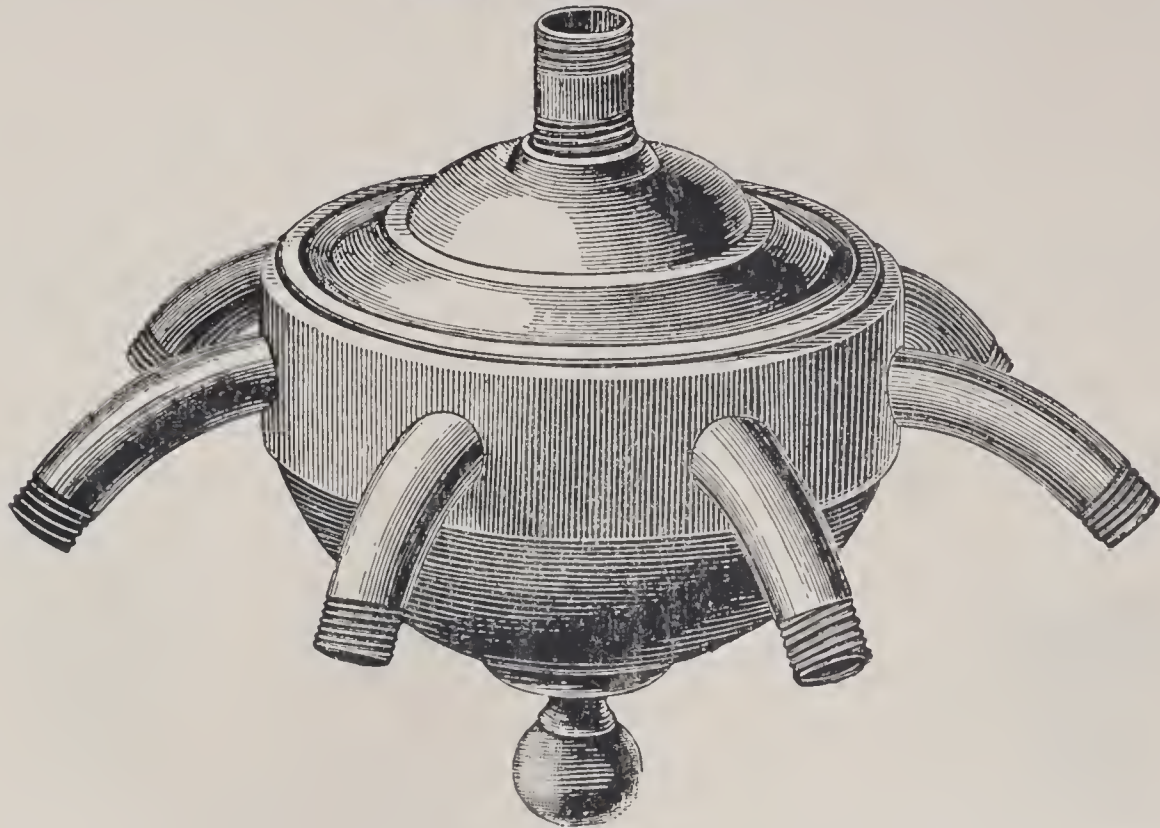
Trade Word.	Size.	Price.
Above.	Threaded, $\frac{1}{4}$ nipple	per doz. \$6.25
Abrade.	" $\frac{3}{8}$ "	" 6.50
Abrasion.	" $\frac{1}{2}$ "	" 7.00

For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

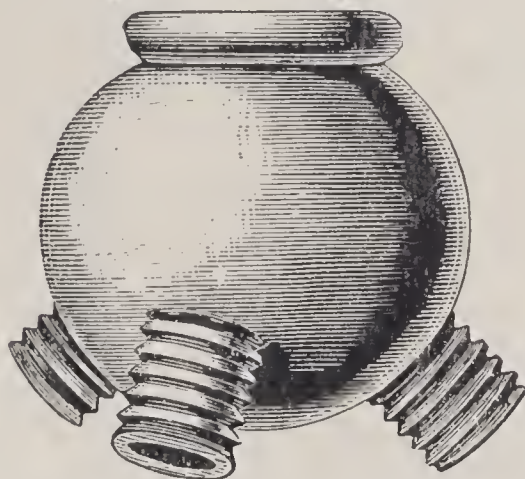
## BOX CLUSTER.



Stem tapped for  $\frac{3}{8}$ -inch iron pipe. Removable Shell for Wiring.

Trade Word.	Style.		Price.
Abrupt.	6-Light	.....each,	\$ 4.00
Abruptly.	8- "	.....	" 5.50
Abscess.	10- "	.....	" 7.50
Abscond.	12- "	.....	" 10.00
Absconded.	15- "	.....	" 15.00

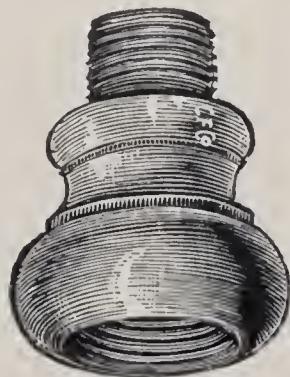
## CLUSTER BALL.



From 2 to 6 Lights. Tapped any size.

Trade Word.	Style.		Price.
Abreast.	2-Light	.....each,	\$ .75
Abridge.	3- "	.....	" 1.00
Abridger.	4- "	.....	" 1.25
Abroad.	5- "	.....	" 1.70
Abrogate.	6- "	.....	" 2.50

## STRAIGHT NOZZLE.—(Brass.)



## ELBOW NOZZLE.—(Brass.)



Trade Word.	Style.	Price.	Trade Word.	Style.	Price.
Absconding.	$\frac{1}{8} \times \frac{1}{8}$ inch, Iron Thread	...each, 25c.	Absentee.	$\frac{1}{8} \times \frac{1}{8}$ inch, Iron Thread	.....each, 25c.
Absence.	$\frac{1}{8} \times \frac{1}{4}$ " " " " " "	25c.	Absist.	$\frac{1}{8} \times \frac{1}{4}$ " " " " " "	" 25c.
Absent.	$\frac{1}{8} \times \frac{3}{8}$ " " " " " "	25c.	Absolute.	$\frac{1}{8} \times \frac{3}{8}$ " " " " " "	" 25c.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

HARD RUBBER BUSHING.

<sup>3</sup>/<sub>8</sub> BRASS THREAD, TO FIT SOCKETS, WITH HOLE FOR FLEXIBLE CORD.



Trade Word.	Price.
Abstain.....	per 100, \$9.00

NEW HARD RUBBER NOZZLE.

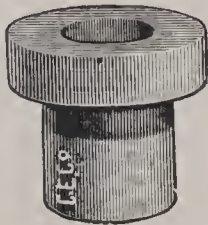
DRILLED FOR WIRING.



Trade Word.	Size.	Price.
Abstained.	$\frac{1}{8}$ x $\frac{1}{8}$ in.....	per 100, \$15.00
Abstaining.	$\frac{1}{4}$ x $\frac{1}{8}$ " .....	" 20.00
Abstemious.	$\frac{3}{8}$ x $\frac{1}{8}$ " .....	" 25.00

SOFT RUBBER BUSHING.

TO PREVENT ABRASION OF CORD.



Trade Word.	Price.
Abstract .....	per 100, \$4.00

HARD RUBBER NOZZLE.

FOR INSULATING PURPOSES.



Trade Word.	Size.	Price.
Abstracted.	$\frac{1}{8}$ x $\frac{1}{8}$ in., Iron Thread.	per 100, \$15.00
Abstraction.	$\frac{1}{4}$ x $\frac{1}{8}$ " " " " "	20.00
Abstruse.	$\frac{3}{8}$ x $\frac{1}{8}$ " " " " "	25.00

HARD RUBBER INSULATING NIPPLES.



$\frac{1}{8}$  MALE x  $\frac{1}{8}$  FEMALE.

INSULATES FILAMENT LAMP FROM FIXTURE.

Trade Word.	Price.
Absurd .....	per 100, \$9 00

For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## ADJUSTING BALLS.

FOR ADJUSTING FLEXIBLE PENDANTS (FOR MANNER OF USE, SEE CUT).

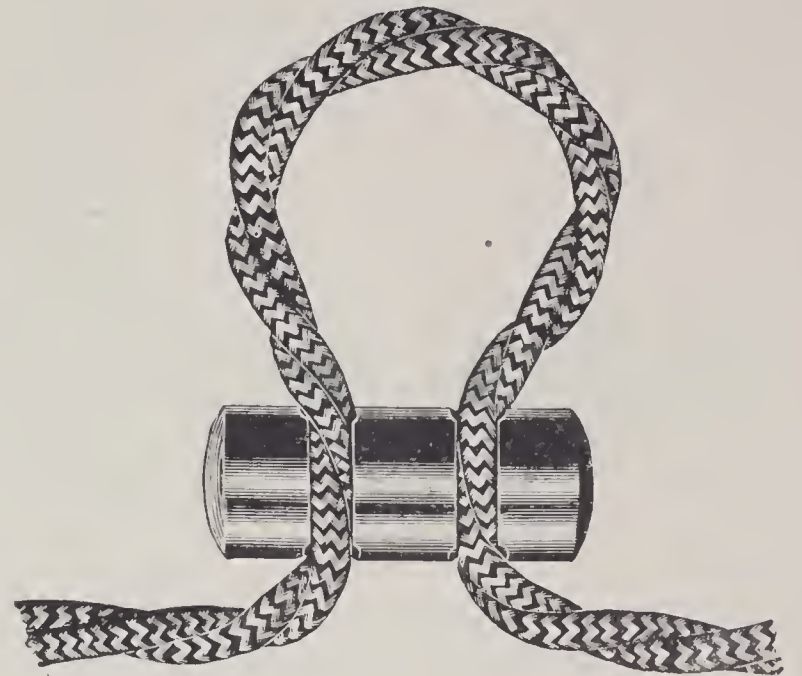


This cut shows a Flexible Pendant complete, with One Light Double Pole Cut-out, Flexible Cord, Adjusting Ball, Wood Handle, Socket, Lamp, Shade and Holder.

Trade Word.	Wood.	Price.
Absorb.	Maple .....	\$0.05
Absorbed.	Cherry.....	.05

## IMPROVED LAMP CORD ADJUSTER.

CUT FULL SIZE. IN WOOD, FINELY ENAMELED.

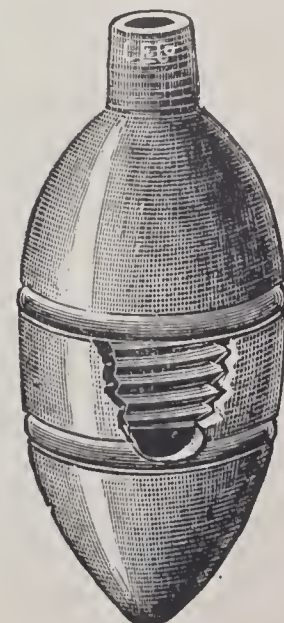


For varying the length of Incandescent drop cords.

Trade Word.	Price.
Absorbent. Each .....	\$0.05

## WOOD HANDLE OR FINISHING PIECE.

FOR USE WITH FLEXIBLE CORD.



Trade Word.	Wood.	Price.
Absorbing.	Maple .....	\$0.10
Absorption.	Cherry.....	.12

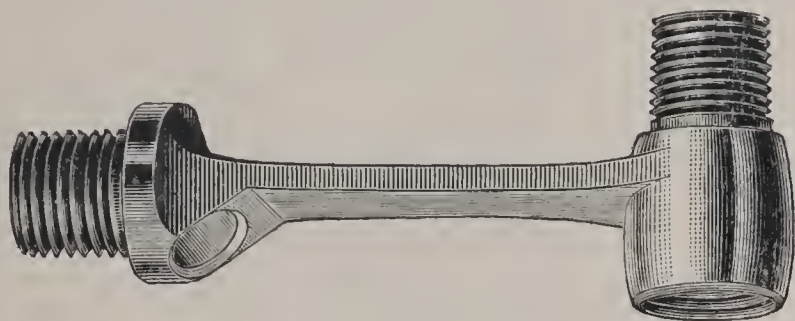
For Explanation of Trade Word see page 4.



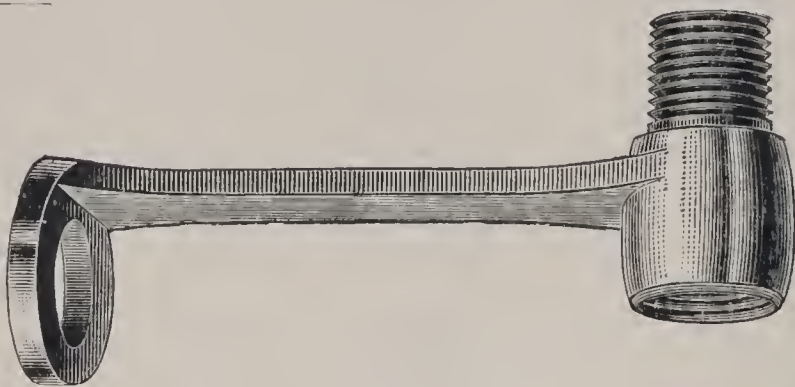
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

GAS LIGHT COMBINATION ATTACHMENTS.

For attaching Incandescent Lamps to gas fixtures, and converting the latter into combination fixtures.



Trade Word. PLAIN. Price.  
Absolutely.....per 100, \$25.00



Trade Word. INSULATED. Price.  
Absolution.....per 100, \$30.00



Trade Word. Price.  
Absolve.....per 100, \$10.00

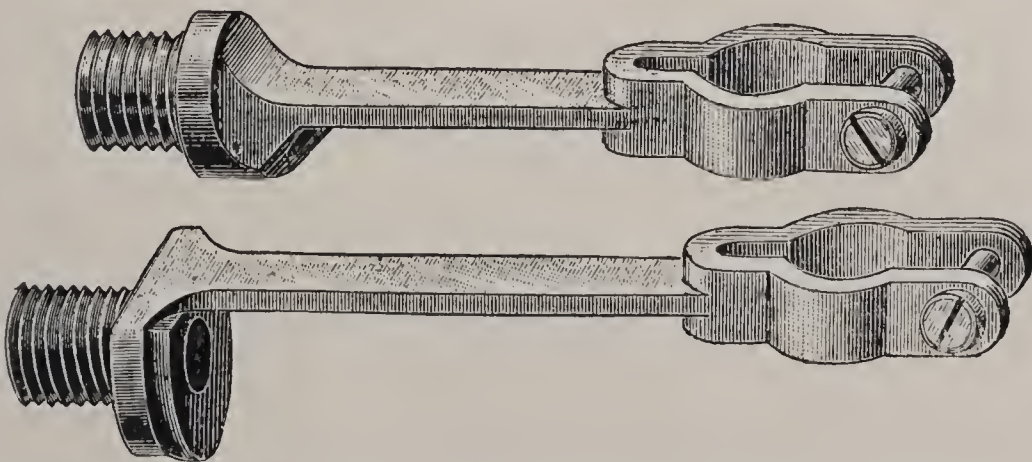


STANDARD LENGTH 2½ in. (OTHER LENGTHS TO ORDER.)

This attachment is made straight and can readily be bent to any desired angle.

Trade Word. Price.  
Absonant.....per 100, \$20.00

UNIVERSAL LAMP ATTACHMENT.



These attachments grip upon the base of the burner at any desired angle, and may be instantly adjusted without breaking the old gas joints. The grip is so constructed as never to become loose.

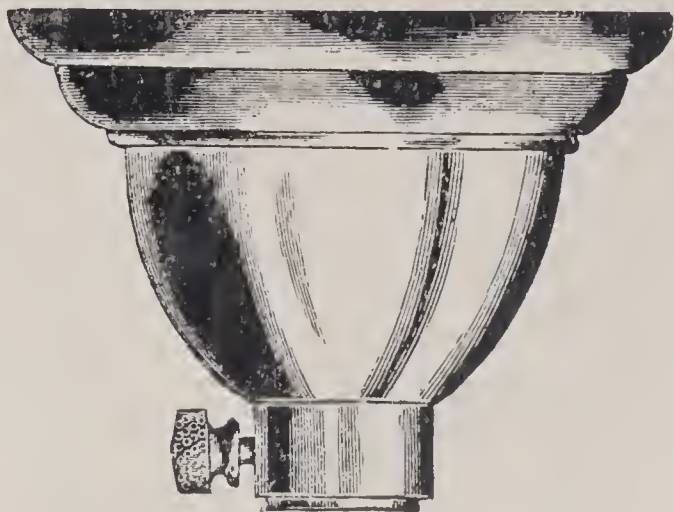
Trade Word. Price.  
Absolver. Plain.....per 100, \$25.00  
Absolving. Insulated.....“ 30.00

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

SLIDING CANOPIES.

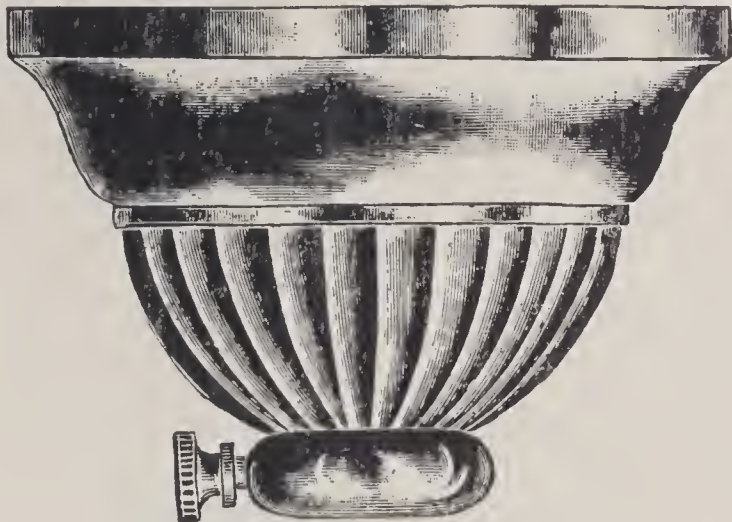


POLISHED BRASS OR BRONZE.

SPUN SLIDES.

Trade Word.	Size.		Price
Absurdity.	4 in. diameter,	2 $\frac{1}{2}$ in. deep, for $\frac{3}{4}$ in. tubing.....	each, \$1.00
Absurdly.	4 " "	2 $\frac{3}{4}$ " " " $\frac{3}{4}$ " " .....	" 1.25
Abundance.	4 " "	3 $\frac{1}{4}$ " " " $\frac{3}{4}$ " " .....	" 1.50

FANCY SLIDING CANOPIES.

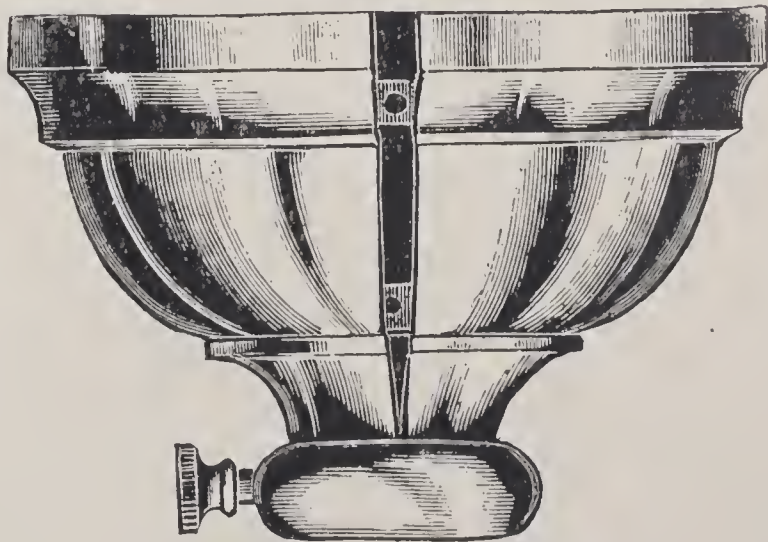


POLISHED BRASS OR BRONZE.

CAST SLIDES.

Trade Word.	Size.		Price.
Abundant.	4 in. diameter,	2 in. deep, for $\frac{7}{8}$ in. tubing.....	each, \$1.25
Abuse	4 $\frac{1}{2}$ " "	2 $\frac{1}{2}$ " " " $\frac{7}{8}$ " " .....	" 1.50
Abused.	5 " "	3 " " " 1 " " .....	" 1.75

SLIDING SPLIT CANOPIES.



POLISHED BRASS OR BRONZE.

CAST SLIDES.

Trade Word.	Size.		Price.
Abusive.	4 $\frac{1}{2}$ in. diameter,	2 $\frac{1}{2}$ in. deep, for $\frac{7}{8}$ in. tubing.....	each, \$2.25
Abusing.	5 " "	3 " " " 1 " " .....	" 2.50

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

ELECTRIC BRACKETS.

FINISHED IN POLISHED BRASS AND LACQUERED.—STYLE A.



This Bracket will be furnished in rope style of tubing at an advance of \$3.00 per dozen on list.

3-8 INCH TUBE.		Price.
Trade Word.		
Abut.	6-inch.....per doz.,	\$12.50
Abutment.	8- “ .....	13.25
Abutting.	10- “ .....	13.75
Abyss.	12- “ .....	14.25

7-16 INCH TUBE.		Price.
Trade Word.		
Acacia.	6-inch.....per doz.,	\$14.50
Academic.	8- “ .....	15.25
Academist.	10- “ .....	15.75
Academy.	12- “ .....	16.25



3-8 INCH TUBE.		Price.
Trade Word.		
Accede.	6-inch.....per doz.,	\$12.50
Acceded.	8- “ .....	13.25
Acceding.	10- “ .....	13.75
Accelerate.	12- “ .....	14.25

7-16 INCH TUBE.		Price.
Trade Word.		
Accent.	6-inch..... per doz.,	\$14.50
Accept.	8- “ .....	15.25
Acceptable.	10- “ .....	15.75
Acceptance.	12- “ .....	16.25



3-8 INCH TUBE.		Price.
Trade Word.		
Accepted.	6-inch.....per doz.,	\$15.00
Accepter.	8- “ .....	15.75
Accepting.	10- “ .....	16.25
Accepts.	12- “ .....	17.00

7-16 INCH TUBE.		Price.
Trade Word.		
Access.	6-inch.....per doz.,	\$17.00
Accessible.	8- “ .....	17.75
Accessory.	10- “ .....	18.25
Accident.	12- “ .....	19 00

For Explanation of Trade Word see page 4.

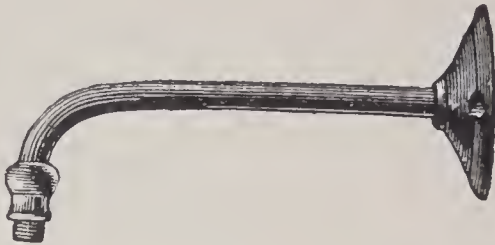


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

ELECTRIC BRACKETS.

FINISHED IN POLISHED BRASS AND LACQUERED.

STYLE B.



3-8 INCH TUBE.		Price.
Trade Word.		
Accidental.	6-in.....per doz.,	\$11.00
Acclaim.	8 “.....“	12.00
Acclamation.	10 “.....“	13.00
Acclamatory.	12 “.....“	13.50

7-16 INCH TUBE.		Price.
Trade Word.		
Accountant.	6-in.....“	\$12.00
Accounted.	8 “.....“	12.75
Accounting.	10 “.....“	13.50
Accoutre.	12 “.....“	14.00

3-8 INCH TUBE.		Price.
Trade Word.		
Acclivity.	6-in.....per doz.,	\$11.00
Accompany.	8 “.....“	12.00
Accomplice.	10 “.....“	13.00
Accomplish.	12 “.....“	13.50

7-16 INCH TUBE.		Price.
Trade Word.		
Accredit.	6-in.....per doz.,	\$12.00
Accretion.	8 “.....“	12.75
Accretive.	10 “.....“	13.50
Accrue.	12 “.....“	14.00



3-8 INCH TUBE.		Price.
Trade Word.		
Accord.	6-in.....per doz.,	\$11.00
Accordance.	8 “.....“	12.00
Accordant.	10 “.....“	13.00
Accorder.	12 “.....“	13.50

7-16 INCH TUBE.		Price.
Trade Word.		
Accuracy.	6-in.....per doz.,	\$12.00
Accurate.	8 “.....“	12.75
Accurately.	10 “.....“	13.50
Accuse.	12 “.....“	14.00

3-8 INCH TUBE.		Price.
Trade Word.		
According.	6-in.....per doz.,	\$9.00
Accordingly.	8 “.....“	10 00
Account.	10 “.....“	11.00
Accountable.	12 “.....“	12.00

7-16 INCH TUBE.		Price,
Trade Word.		
Accusable.	6-in.....per doz.,	\$10.00
Accusant.	8 “.....“	10.75
Accusation.	10 “.....“	11.50
Accuse.	12 “.....“	12.00

These Brackets will be furnished in Rope Style of Tubing at an advance of \$3.00 per dozen on list.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

ELECTRIC BRACKETS.

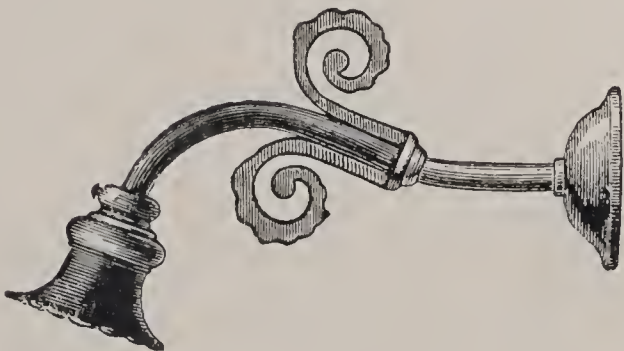
FINISHED IN POLISHED BRASS AND LACQUERED.



3-8 INCH TUBE.

7-16 INCH TUBE.

Trade Word.		Price.	Trade Word.		Price.
Accuser.	(12 in. only)	.....per doz., \$20.00	Accusing.	(12 in. only)	.....per doz., \$22.50



Trade Word.		Price.
Accustom.	.....	.....per doz, \$42.50

ROPE PATTERN, FANCY GROOVED BACK.



3-8 INCH TUBE.

Trade Word.		Price.
Ace.	6 in.....	.....per doz, \$16.00
Acerbity.	8 “.....	“ 17.00
Acetic.	10 “.....	“ 18.00
Ache.	12 “.....	“ 19.00

For Explanation of Trade Word see page 4.

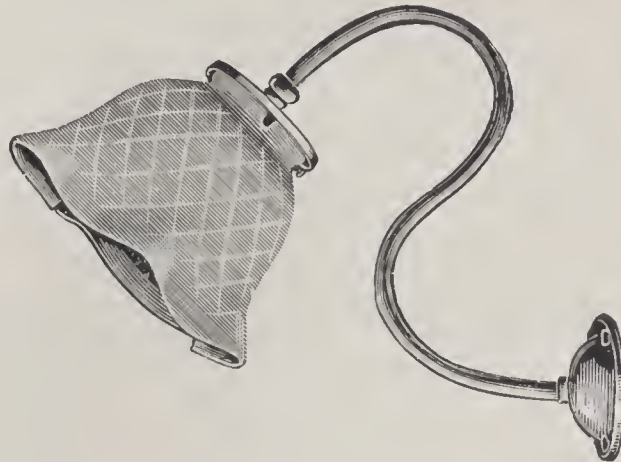


# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## ELECTRIC BRACKETS.

FINISHED IN POLISHED BRASS AND LACQUERED.

Prices do not include Lamps, Sockets or Shades.



Trade Word.

Achievable. Extends 8 inches. ....each, \$2.00

Price.

Made in 7-16 inch tubing only.



Trade Word.

Achieve. Extends 13 inches. ....each, \$4.00

Price.

Size of Tube,  $\frac{3}{8}$  inches.

## TWO-LIGHT.



Trade Word.

Achievement. Extends 15 inches. ....each, \$6.00

Price.

Size of Tube,  $\frac{3}{8}$  inch.

This Two-Light Bracket can be furnished with arms, same as style A, on page 10, or style B, on page 11, at same list as above.

For Explanation of Trade Word see page 4.

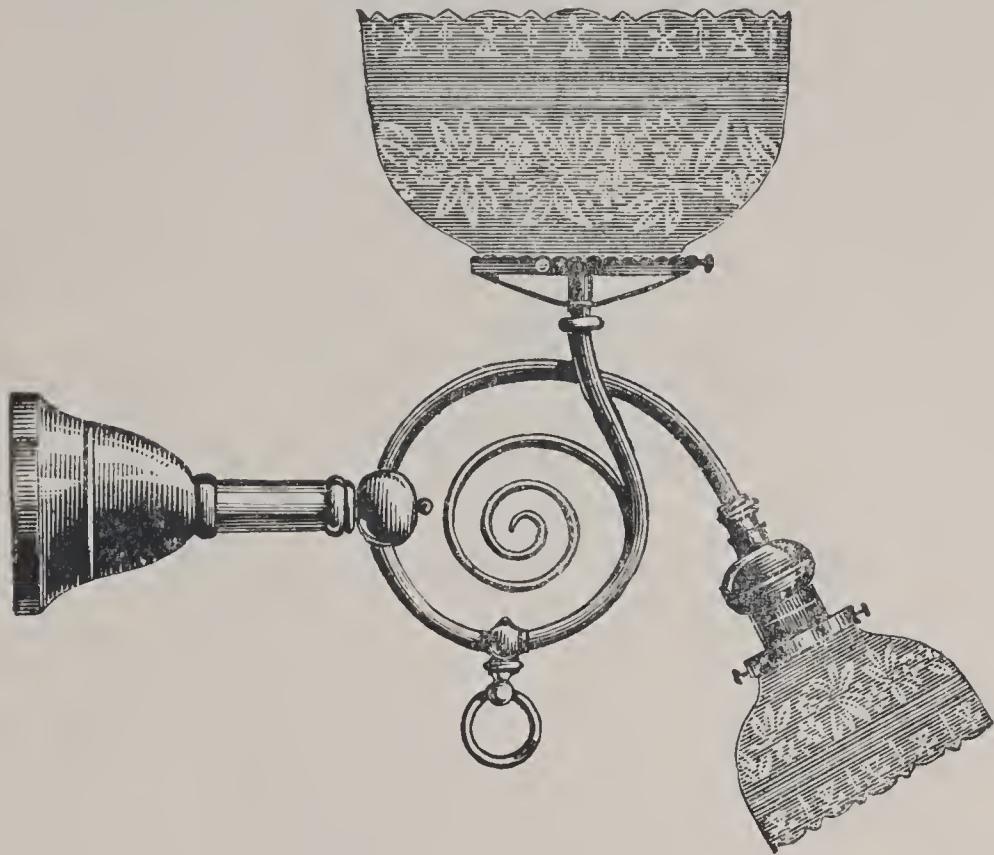


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

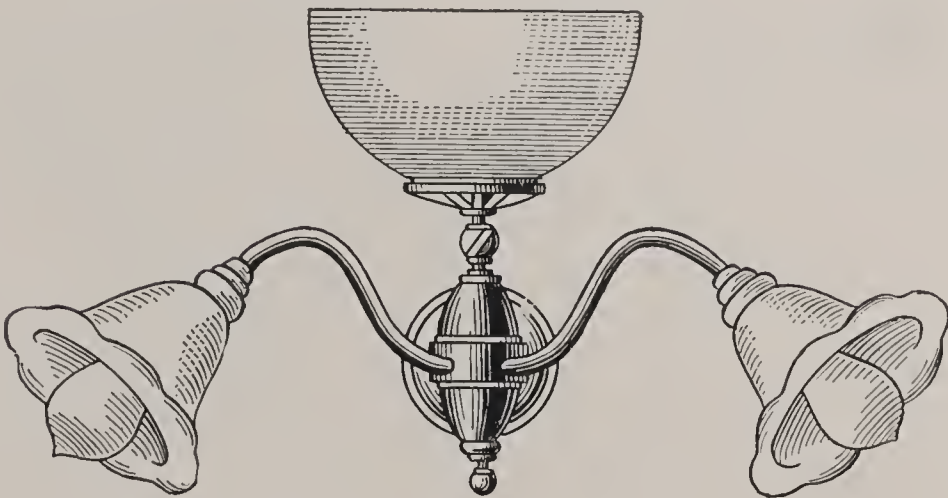
COMBINATION GAS AND ELECTRIC BRACKETS.

FINISHED IN POLISHED BRASS AND LACQUERED.

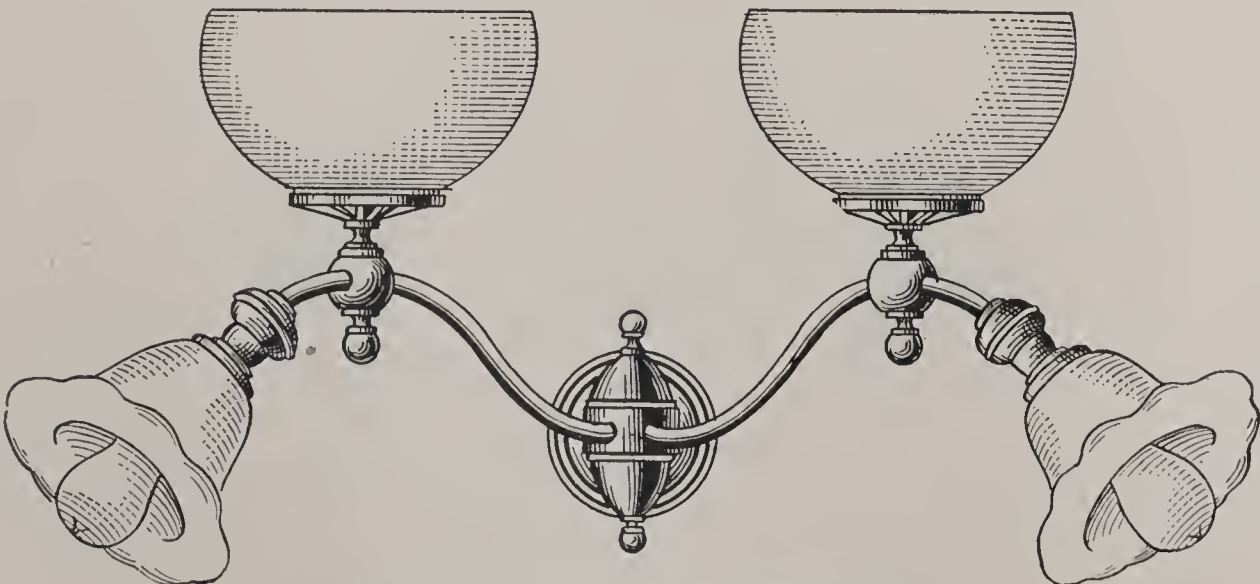
Prices do not include Lamps, Sockets or Shades.



Trade Word.			Price.
Achieving.	Extends 13 inches.	.....each,	\$9.50
	Size of Tube, $\frac{3}{8}$ inch.		



Trade Word.			Price.
Aching.	Two Electric and 1 Gas Light	.....each,	\$10.50



Trade Word.			Price.
Acid.	Spread { Gas 11-in. Electric 21-in. }	.....each,	\$12.00

For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

ELECTRIC PENDANTS.

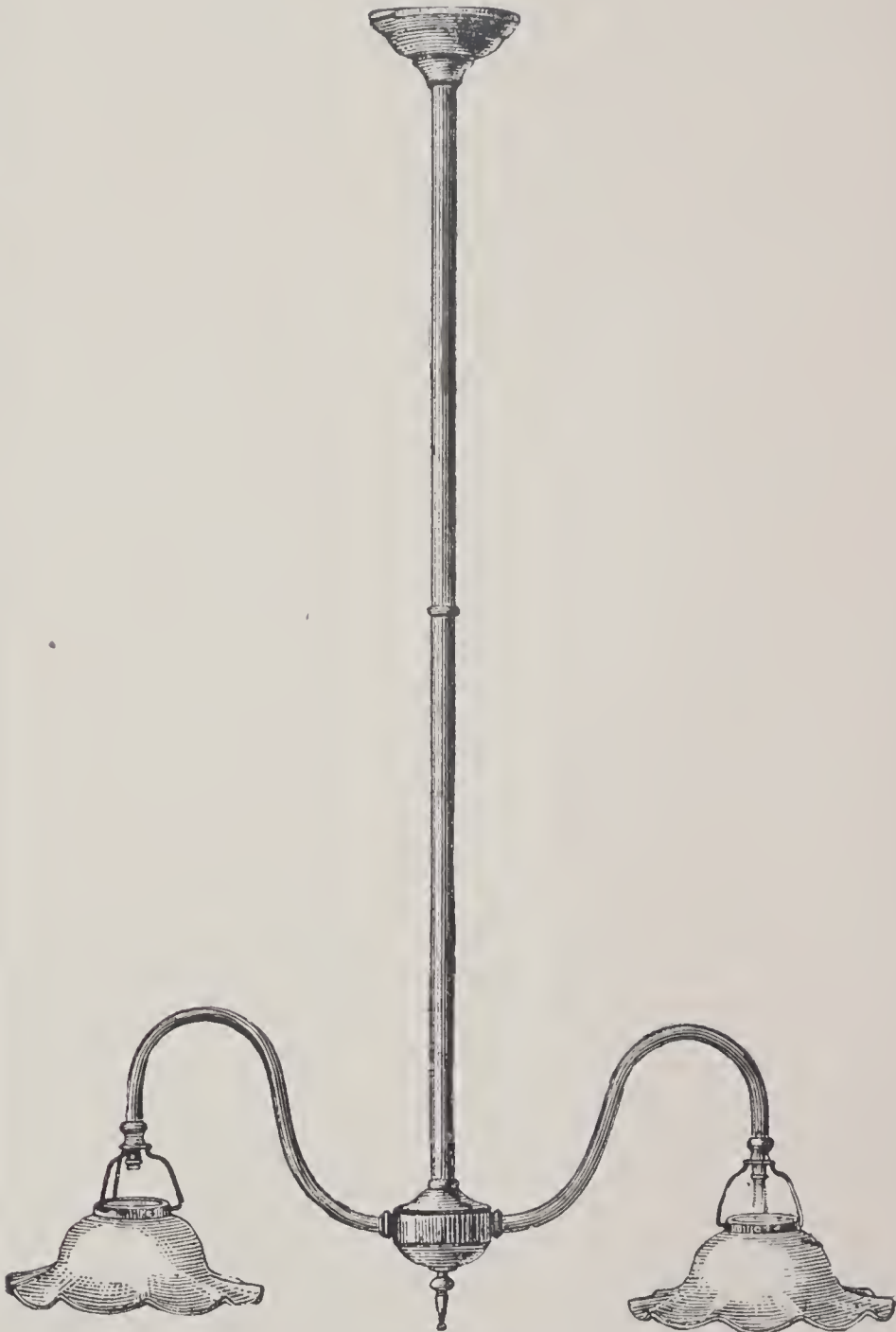
FINISHED IN POLISHED BRASS AND LACQUERED.

Price does not include Lamps, Sockets or Shades.



Trade Word.	Length.	Price.
Acidify.	36-in., $\frac{3}{8}$ -in tube.....	each, \$4.00
Acidulate.	40 " $\frac{7}{16}$ " " .....	" 4.50
	60 " $\frac{7}{16}$ " " .....	" 6.00

This Pendant can be furnished with Cluster Ball or Box Cluster, if desired; see page 9; price same as list with price of Cluster Ball or Box Cluster added.



Length, 40-in.; spread, 18-in.; size of tube,  $\frac{3}{8}$ -in.

Trade Word.	Price.
Acknowledge. 2-light.....	each, \$10.00
Acme. 3 " .....	" 11.00
Aconite. 4 " .....	" 13.00

This Pendant can be furnished with arms as style A, on page 14, or style B, on page 15, at same list as above.

For Explanation of Trade Word see page 1.

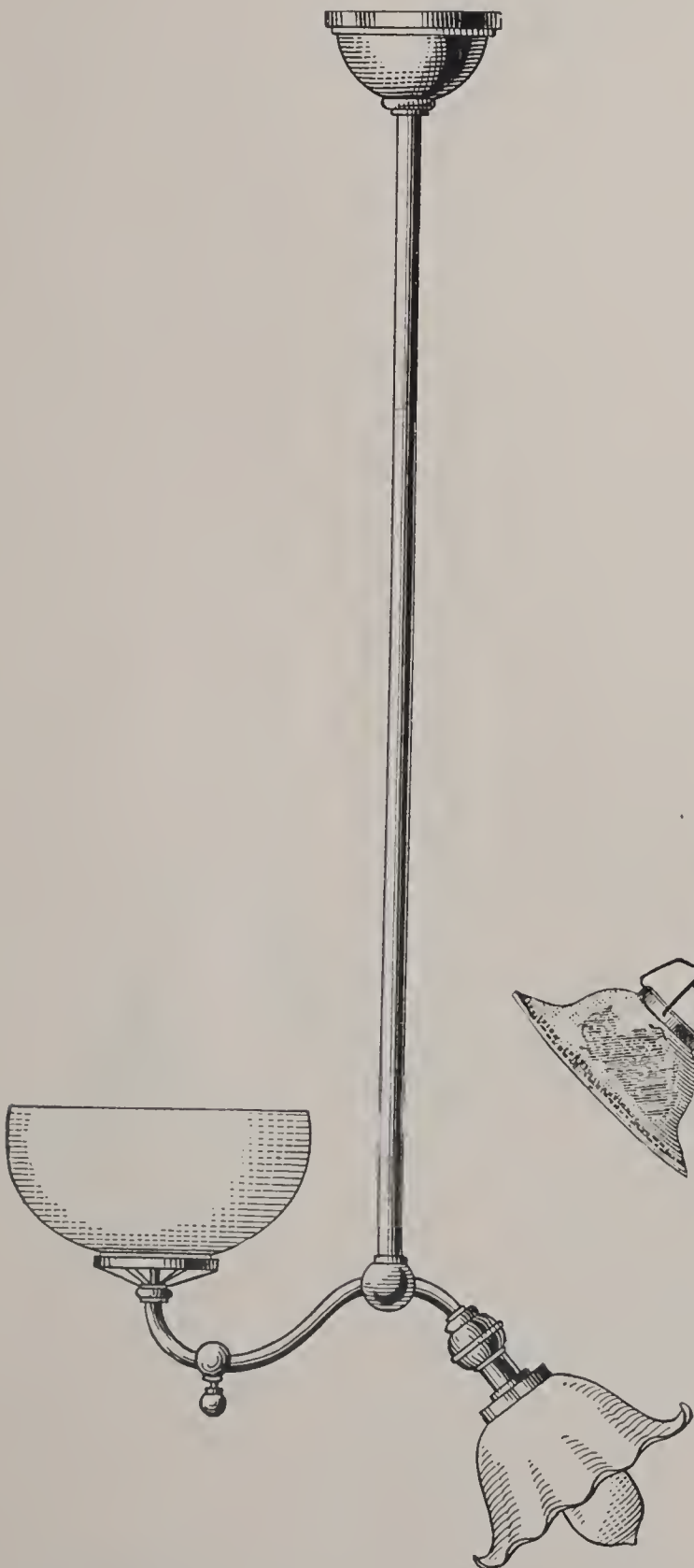


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

COMBINATION GAS AND ELECTRIC PENDANT.

FINISHED IN POLISHED BRASS AND LACQUERED.

Price does not include Lamps, Sockets or Shades.



Trade Word. Price.  
Acorn.....each, \$9 00

Length, 40 inches. Size of Tube,  $\frac{3}{8}$  in.

FANCY ELECTRIC PENDANT.

FINISHED IN POLISHED BRASS AND LACQUERED.

Price does not include Lamps, Sockets or Shades.



Trade Word.		Price.	
Acoustic.	2--Light.....	each,	\$15.00
Acquaint.	3- " .....	"	20.00
Acquaintance.	4- " .....	"	25.00

Style of Tube,  $\frac{3}{8}$  inch.

For Explanation of Trade Word see page 4.

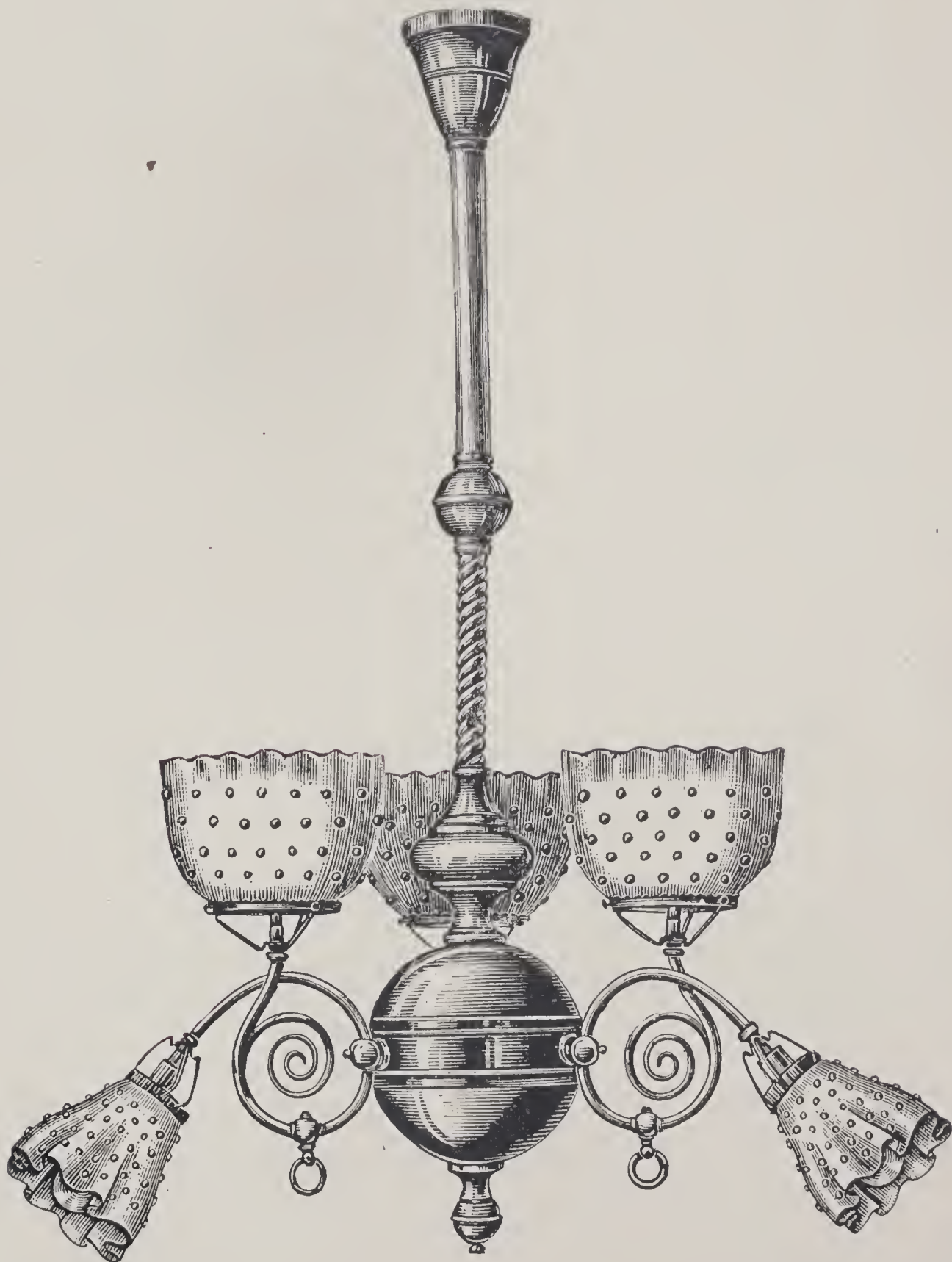
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

COMBINATION GAS AND ELECTRIC CHANDELIER.

FINISHED IN POLISHED BRASS AND LACQUERED.

Price does not include Lamps, Sockets or Shades.

SIZE OF TUBE 3-8 INCH.



LENGTH 40-INCH, SPREAD 24-INCH.

Trade Word.						Price.
Acquainting.	4	Light,	2	Gas and 2	Electric	each, \$25.00
Acquiesce.	6	"	3	"	3	" 32.00
Acquirable.	8	"	4	"	4	" 37.50

For Explanation of Trade Word see page 4.

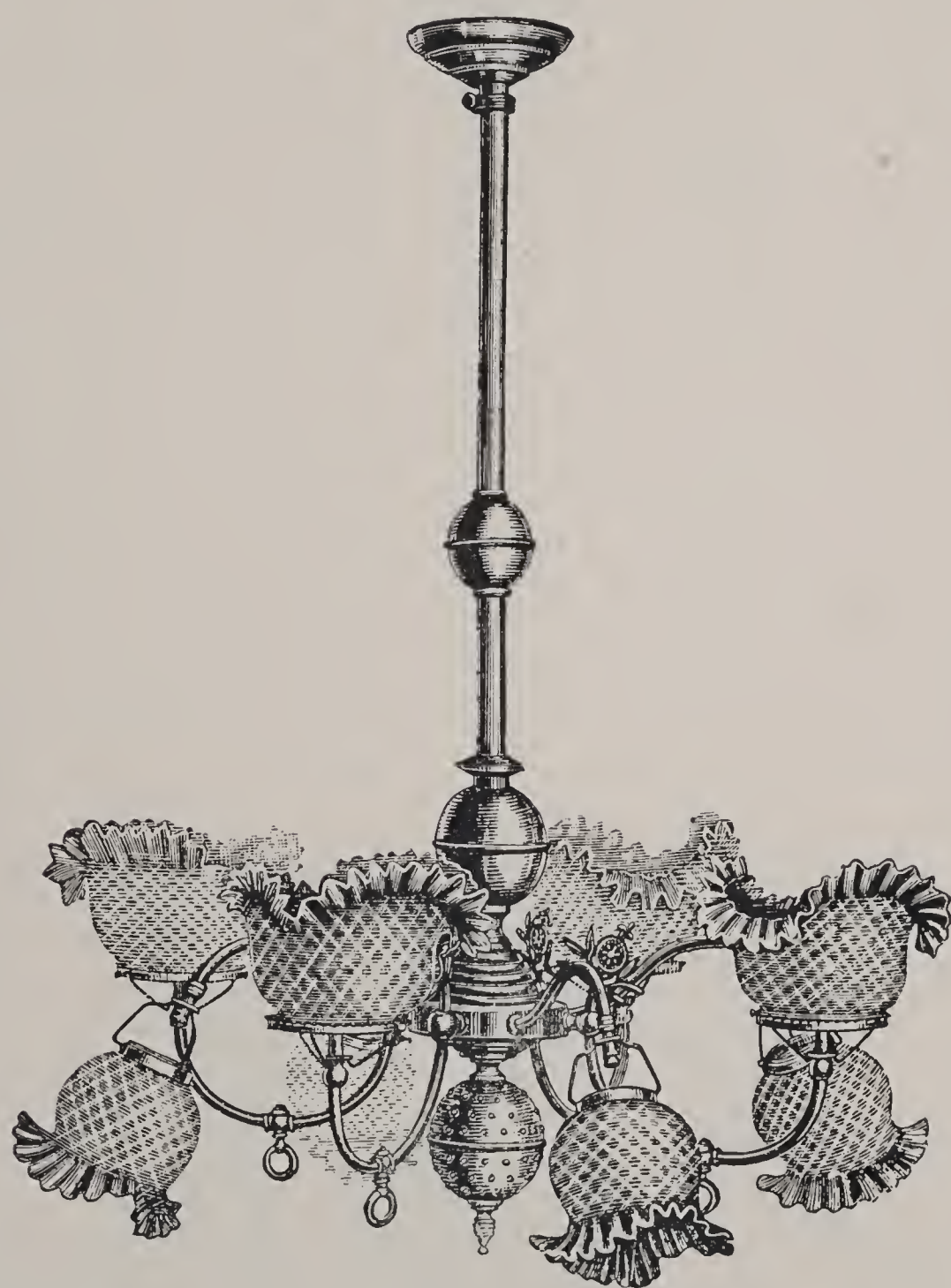


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

COMBINATION GAS AND ELECTRIC CHANDELIER.

FINISHED IN POLISHED BRASS AND LACQUERED.

Price does not include Lamps, Sockets or Shades.



LENGTH 40-IN., SPREAD 24-IN., SIZE OF TUBE 3/8-IN.

Trade Word.								Price.	
Acquire.	4-Light, 2 Gas and 2 Electric. ....							each,	\$20.00
Acquirement.	6	“	3	“	“	3	“	“	26.00
Acquisition.	8	“	4	“	“	4	“	“	32.00
Acquisitive.	10	“	5	“	“	5	“	“	38.00
Acquit.	12	“	6	“	“	6	“	“	44.00

For Explanation of Trade Word see page 4.

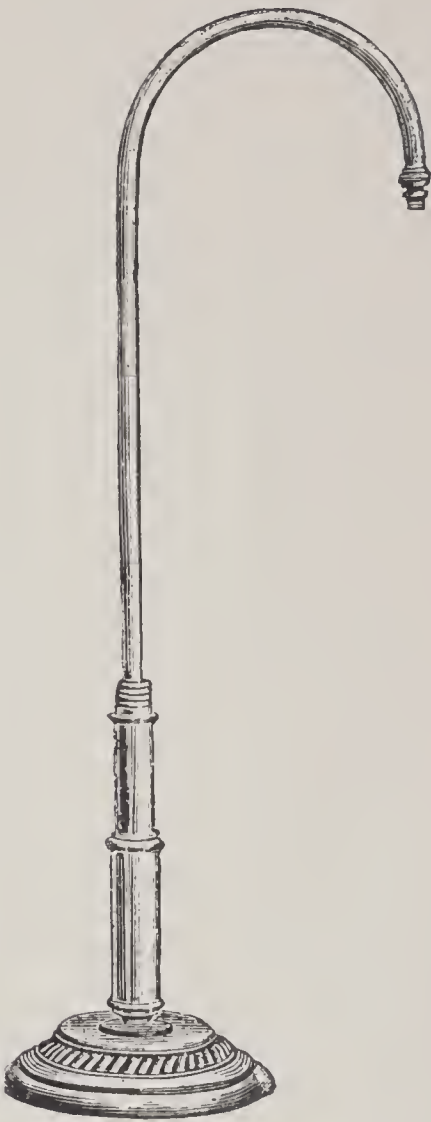
INCANDESCENT ELECTRIC LIGHT SUPPLIES

ELECTRIC PORTABLES.  
FINISHED IN POLISHED BRASS AND LACQUERED.

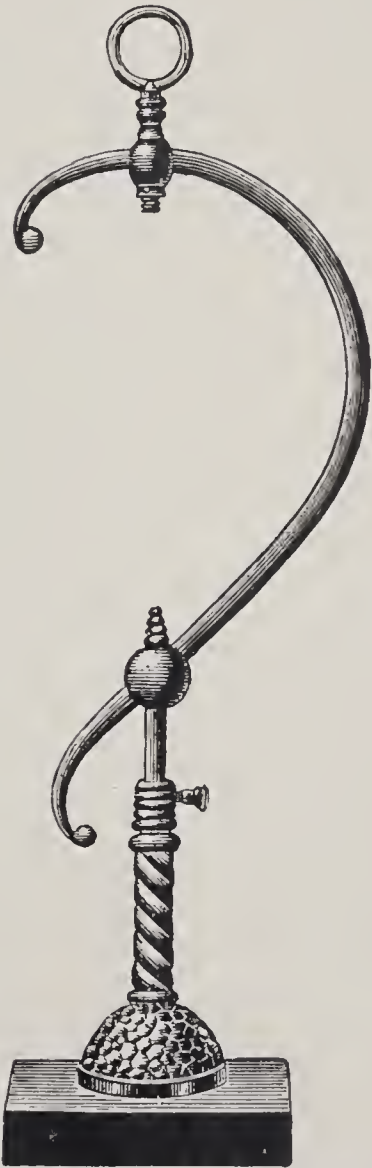
Size of Tube,  $\frac{3}{8}$  inches.



Trade Word. HEIGHT 13 INCHES. Price.  
Acquittance.....each, \$5.00



Trade Word. HEIGHT 23 INCHES. Price.  
Acquitted.....each, \$6.00



HEIGHT 18 INCHES, EXTENDS 24 INCHES.  
Trade Word. EXTENSION. Price.  
Acre.....each, \$10.00  
Trade Word. NON EXTENSION. Price.  
Across.....each, \$8.00



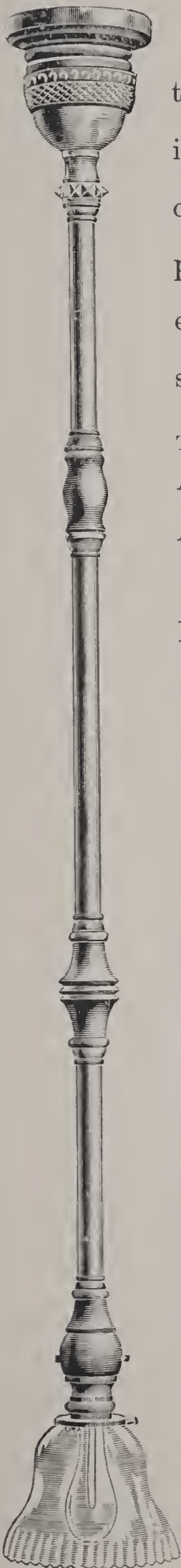
Trade Word. HEIGHT 20 INCHES. Price.  
Acrid.....each, \$9.00

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

ALL WOOD FIXTURES.



Single Light  
Pantechneitheca  
Fixture.

These fixtures are made of wood, which in itself is an insulator, and embody in their structure, insulation, conduction, switch-socket, shade-holder, ceiling rosette, fastenings, contacts, cut-out and canopy. The richest and most artistic designs are readily carved in wood, also the plainest and cheapest articles can be produced ; thus it is made possible to obtain a wide range of decorative effects from a fixture at trifling cost, to an elaboration beyond anything attainable in metal. These fixtures have been tested for some time, under various conditions, and have proven eminently satisfactory.

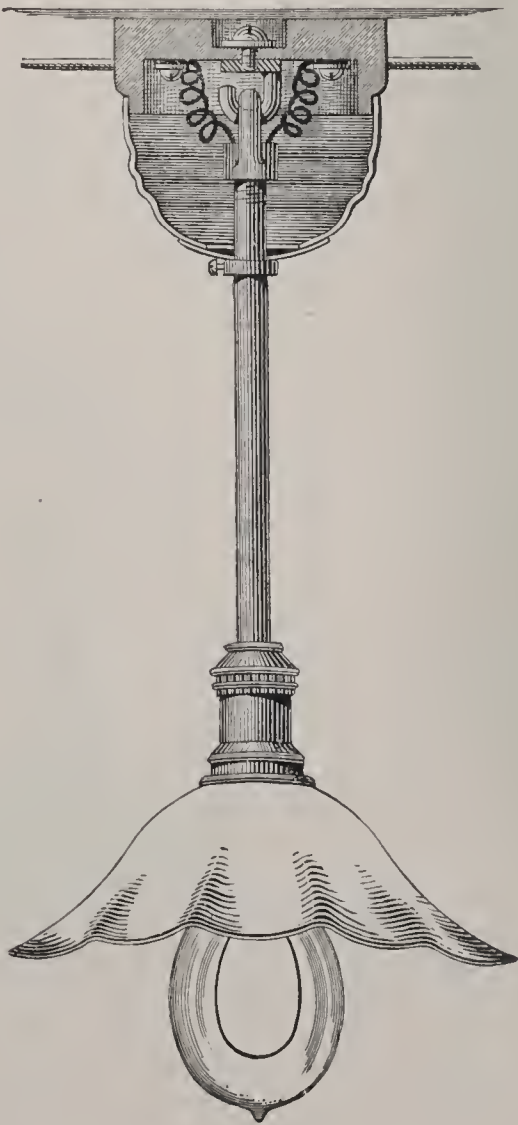
Trade Word.		Price.
Acrostic.	Antique Oak.....	\$5.00
Acrostical.	Walnut.....	5.00
Length of Fixture, 54 inches.		
Extra lengths.....		per foot, .50

ORFORD ROSETTE PENDANT.

To assemble the fixture, place ring with set-screw on the tube first, then the small cap, then screw the eye on end of the tube tight, placing on the canopy last. Then hang on the hook, set the canopy up against bases, small cap against the bottom of canopy, and place set-screw ring, allowing sufficient play for the tube to swing into a vertical position.

Trade Word.		Price
Act.	Rosette and Fittings.....each,	\$ 1.70
Action.	Brass Pendants, $\frac{3}{8}$ in. diam...per foot,	.20
Actionable.	“ “ $\frac{1}{2}$ “ “	.30

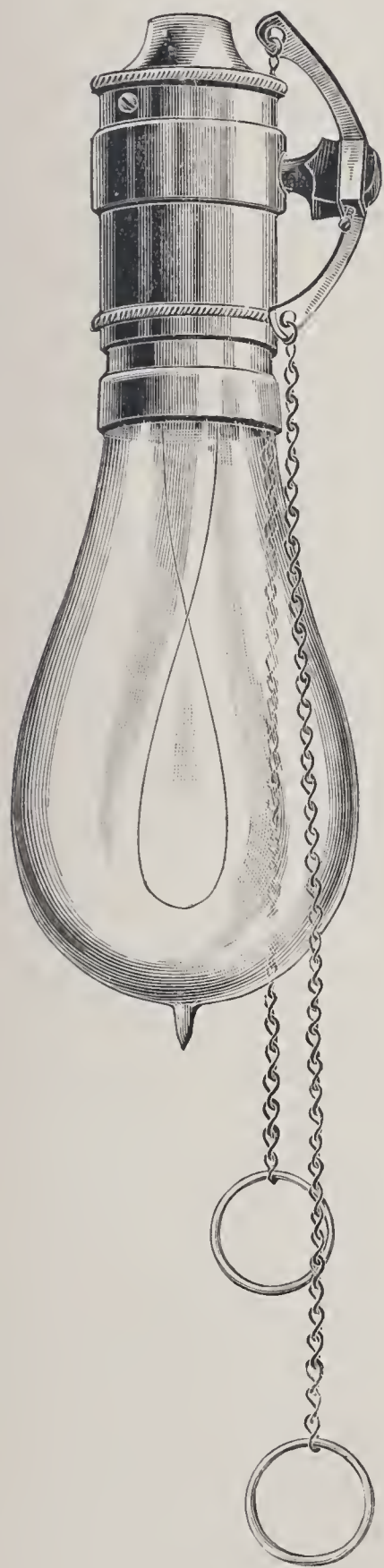
Pendants finished and lacquered.  
In ordering, state whether for moulding, cleat  
or series work.



For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

LEWIS ATTACHMENT.



This attachment is placed upon the key of the socket and is designed to facilitate turning the lamp on and off when the same is placed too high to be conveniently handled otherwise.

The cut shows the method of fastening to the key. Chain can be made any length desired.



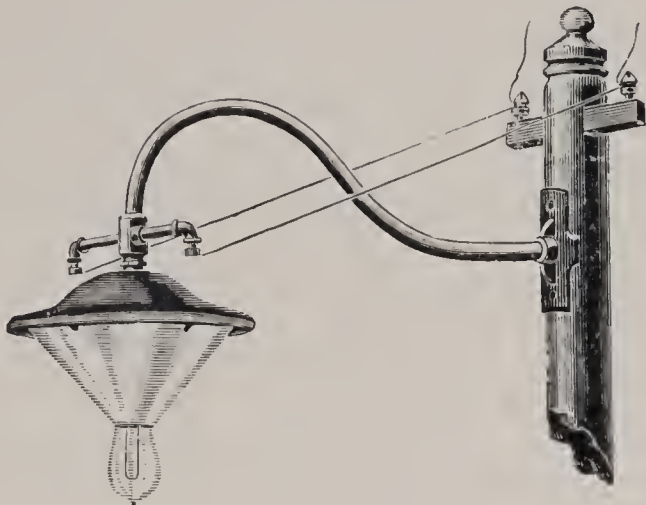
Trade Word.		Price.
Adverse.	With Chain 9 in. long.....	per doz., \$6.00
Adversity.	Extra Beaded Gold Chain.....	per yard, .30

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

“STODDARD” STREET HOOD.



This Pole or Goose-neck Bracket is substantially made, of the best material, and will not sag or be forced out of position by snow, ice or severe wind storms. The Pole Bracket Foot engages the bracket firmly, and is anchored to the pole by strong lag screws. The hood is made of heavy zinc and painted. The reflector is of metal, made from recent designs, and has duplex surfaces. The outside reflector is concaved and inside made convex, and so arranged that the greatest possible reflecting surface is brought in close proximity to the light. The socket stem is adjustable, and affords a ready means of changing the hood to fit any size lamp, a feature heretofore unknown.

There are no soft rubber parts or washers to rot out.

Hoods and brackets may be so wired that the wire will not appear on the outside of the hood, but pass through inside of the bracket and bracket foot to the pole cross arm.

Trade Word.		Price.
Active.	14-inch Hoods and Reflectors complete.....	\$6.00
Activity.	12-inch “ “ “ “ .....	5.00
Includes Hood, Lamp Socket Porcelain Reflector, Insulated Hood, Cross Arm, Goose-neck Bracket, Pole Attachment and Lag Screws.		

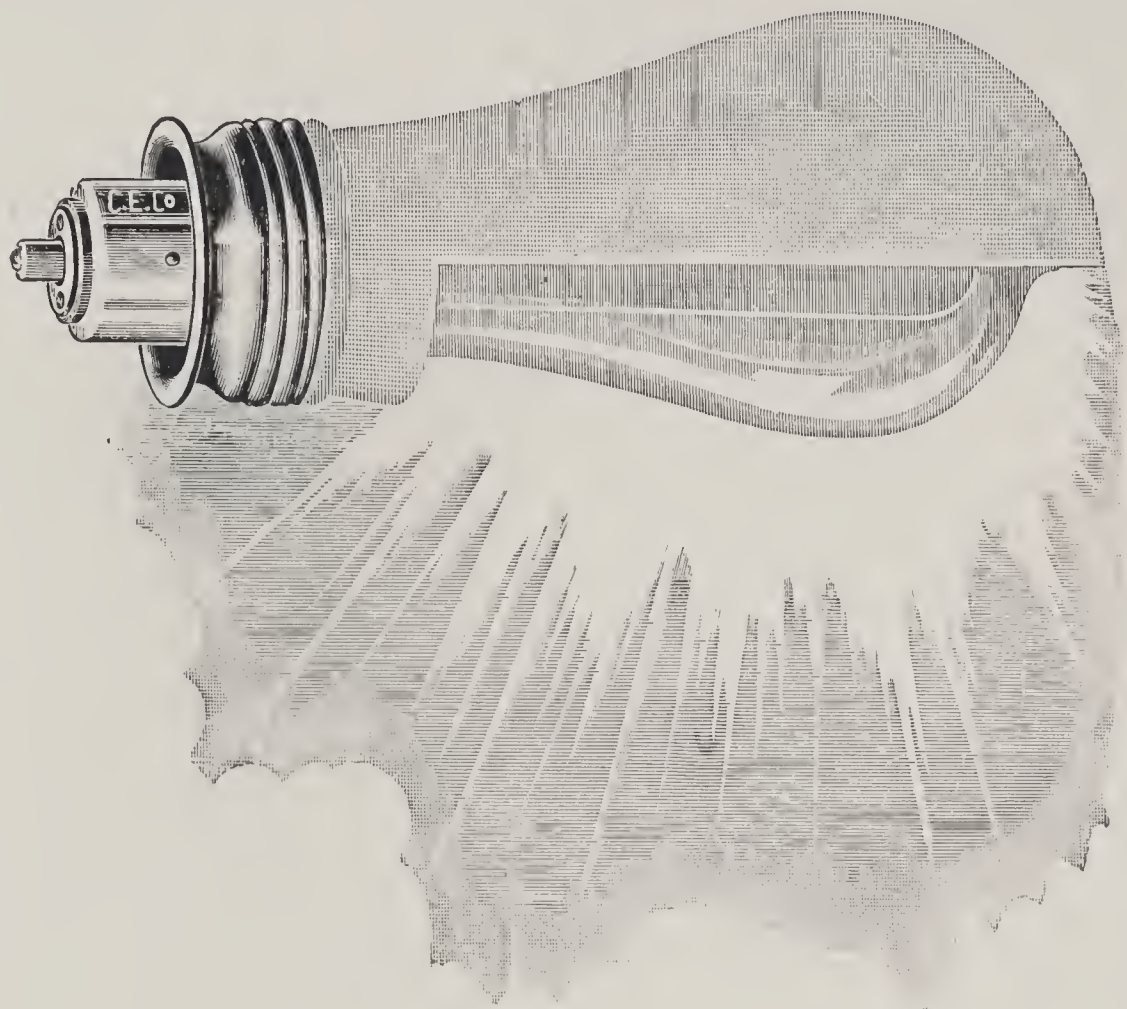
PARTS.

Actless.	Goose-neck Bracket.....	each,	.75
Actor.	Pole Bracket Foot.....	“	.25
Actress.	Lag Screws.....	“	.10
Actual.	Top Hood, Flange and Connections.....	“	.50
Actually.	Vulcanite Insulators.....	“	.15
Actuary.	Hood (12-inch).....	“	1.00
Actuate.	Bottom Hood, Flange and set screw.....	“	.50
Acute.	Adjustable Socket Stem and Set Nut.....	“	.25
Acuteness.	Reflector (12-inch).....	“	1.00
Adage.	Keyless Socket, $\frac{1}{8}$ or $\frac{3}{8}$ .....	“	.50

For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT REFLECTOR SHADE.



HALF SHADE.

This is a very useful form of Reflector, that can be used on Incandescent Lamps when the same are placed over billiard or reading tables, or in positions where it is necessary to concentrate the light. When made with silvered inner reflecting surfaces, it throws a brilliant light, and is especially adapted for footlights. The tinted shades are useful in sick rooms or where a subdued light is needed, as the shade is easily turned about the Lamp, cutting off its brilliant rays. The Opal shade gives a pleasant white light.

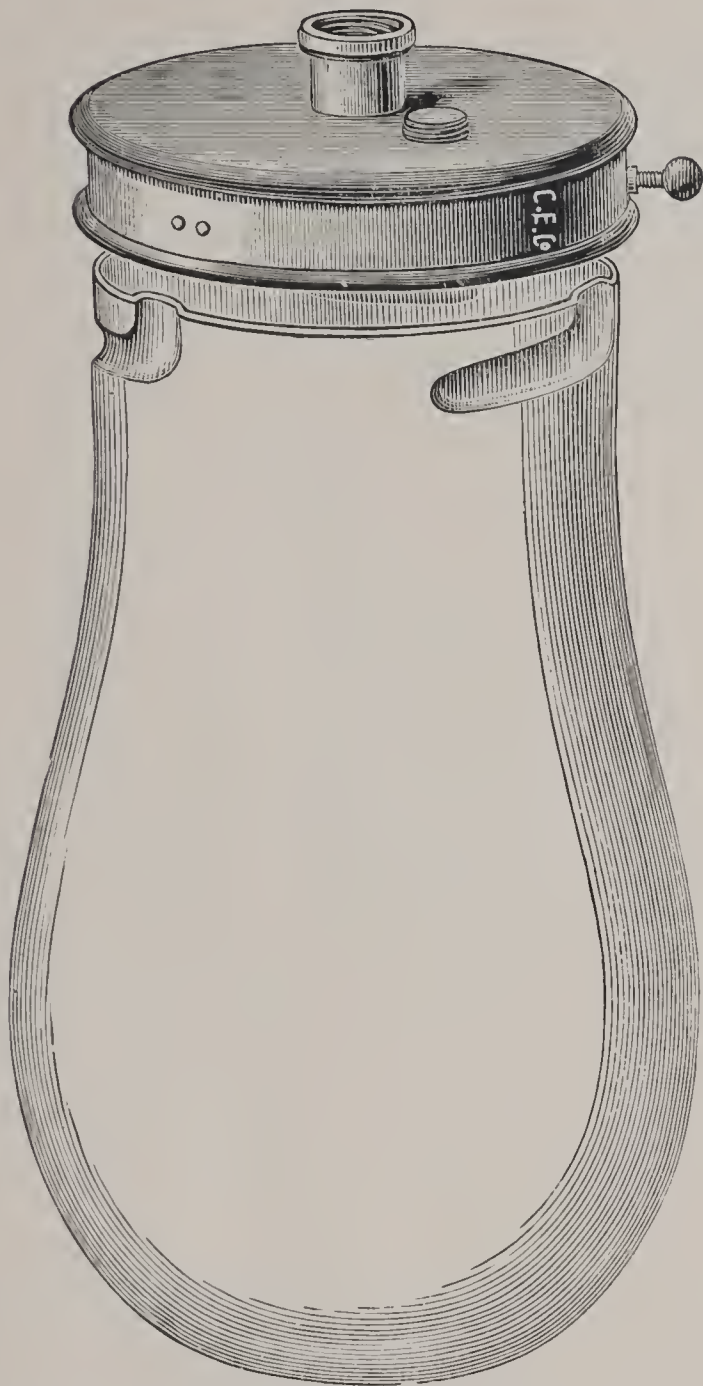
		Price.
Trade Word.		
Adamant.	Opal .....	each, \$1.50
Adapt.	Silvered .....	" 1.75
Adaptable	Colored.....	" 1.60

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

VAPOR-PROOF GLOBE.



This Globe is adapted to Standard Lamps of 50 Candle Power (and less) with Socket. The attachment is fitted with an automatic valve, which opens by internal pressure, but which is tightly closed against water, steam, vapor or any pressure from without. All danger of breakage from expansion of the air within the Globe by reason of the heat of the lamp is thus avoided.

Trade Word.		Price.
Advertiser.	Complete, with Attachm't, each,	\$2.50
Advertiser.	Globe alone..... "	1.20
Advertiser.	Attachment alone..... "	1.30

PEAR SHAPE WATER-PROOF GLOBE.



Excludes rain, steam, etc., but gives relief to internal pressure caused by heated air.

The above is designed for an inexpensive weather-proof Globe for general out door use, or in places where a vapor-proof Globe is not required. It will admit a 25 Candle Power Lamp (or under) with Socket.

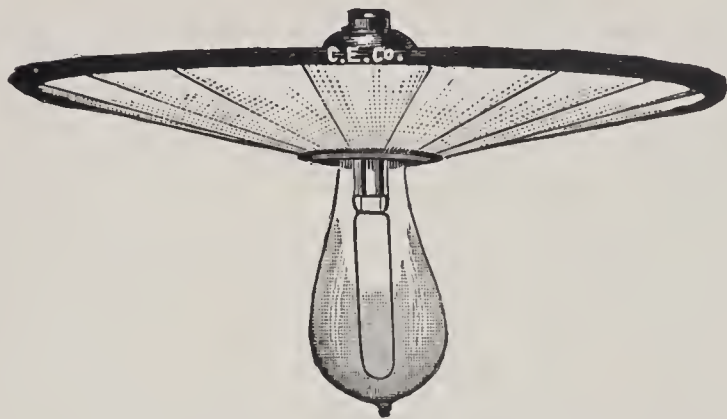
Trade Word.		Price.
Advertiser.	Complete ..... each,	\$ 1.20
Advertiser.	Globe alone..... "	.60
Advertiser.	Cap " ..... "	.60

For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

SILVER-PLATED MIRROR REFLECTORS.

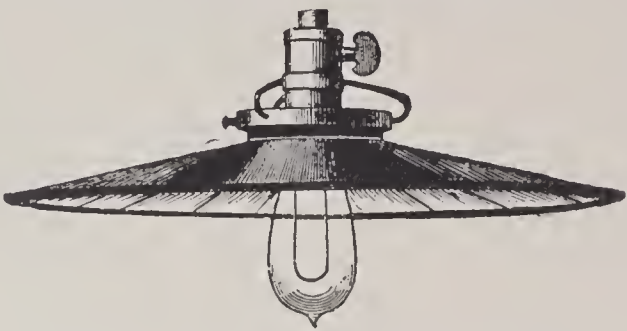
CONVEX REFLECTOR.



For 2¼ and 3¼ inch Shade Holders.

Trade Word.			Price.
Adder.	10-inch	.....each,	\$4.10
Addict.	12 “	..... “	4.60
Adding.	14 “	..... “	5.20
Addition.	16 “	..... “	6.50
Additional.	18 “	..... “	8.30

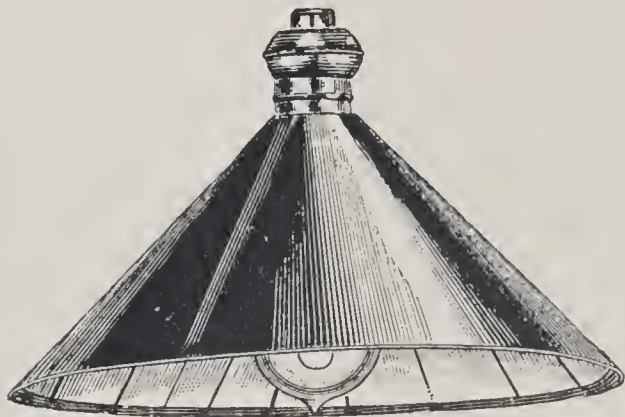
FLAT CONE REFLECTOR.



For 2¼ and 3¼ inch Shade Holders.

Trade Word.			Price.
Addle.	10-inch	.....each,	\$3.70
Address	12 “	..... “	4.25
Addresser.	14 “	..... “	4.60
Addressing.	16 “	..... “	6.00
Adduce.	18 “	..... “	7.40

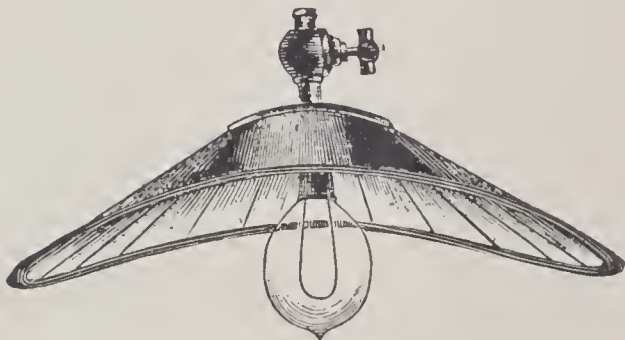
DEEP CONE REFLECTOR.



For 2¼ and 3¼ inch Shade Holders.

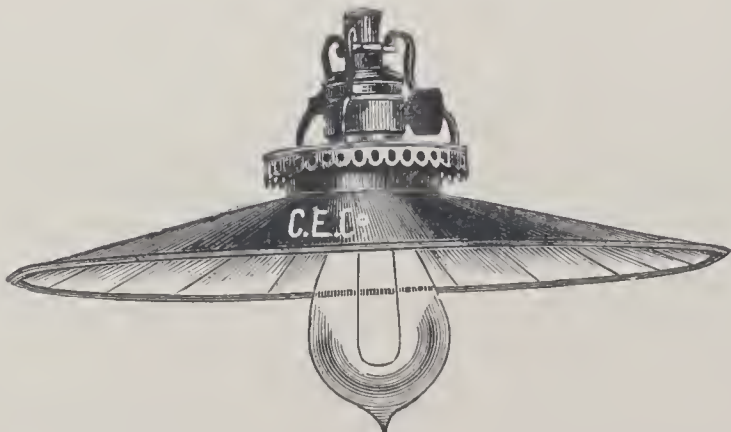
Trade Word.			Price.
Adducible.	10-inch	.....each,	\$4.10
Adept.	12 “	..... “	4.50

REFLECTOR FOR RAILWAY CAR LIGHTING.



Trade Word.		Price.
Adequacy.	Each	\$5.60

CONCAVE REFLECTOR.



Trade Word.			Price.
Adequate.	10-inch	.....each,	\$1.60
Adhere.	12 “	..... “	1.80
Adherence.	14 “	..... “	2.00
Adherent.	16 “	..... “	2.60
Adhering.	18 “	..... “	3.20

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

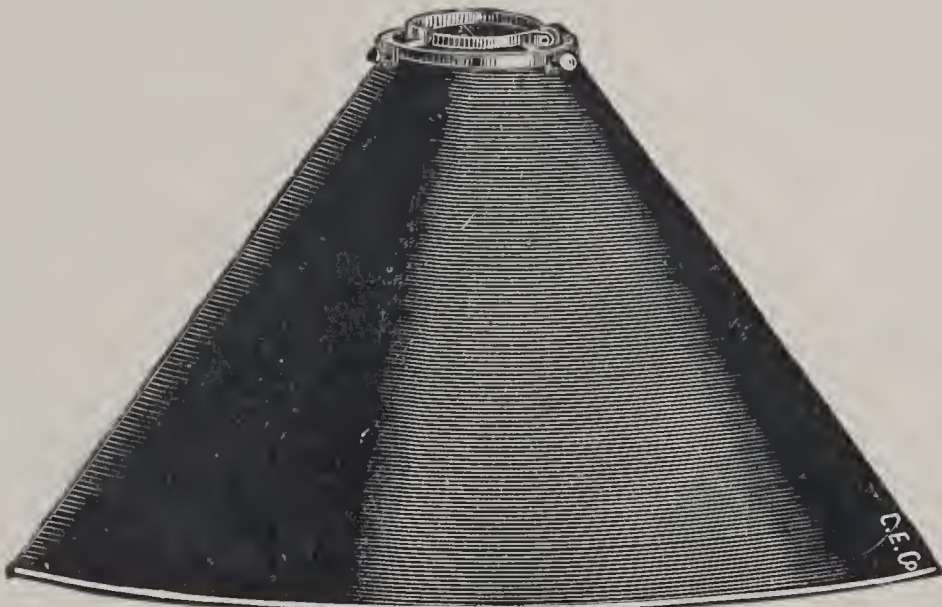
SILVER-PLATED MIRROR REFLECTORS.



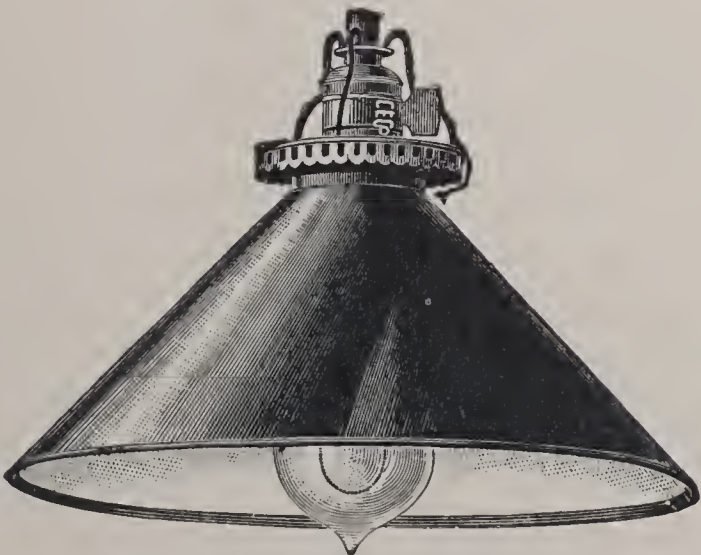
Lined with Silver-plated Mirror-Plate Glass.	Increases the light from twelve to fifteen times.	Most
Trade Word.	valuable over Machines, Work-benches, Type-cases, etc., etc.	Price.
Adhesion.	10-inch.....	each, \$1.90
Adhesive.	12 “.....	“ 2.10
Adieu.	Fancy Finish, extra.....	“ .30

ENAMELED PAPER SHADE.

(TO FIT OUR REGULAR 2 1-4-INCH HOLDER.)

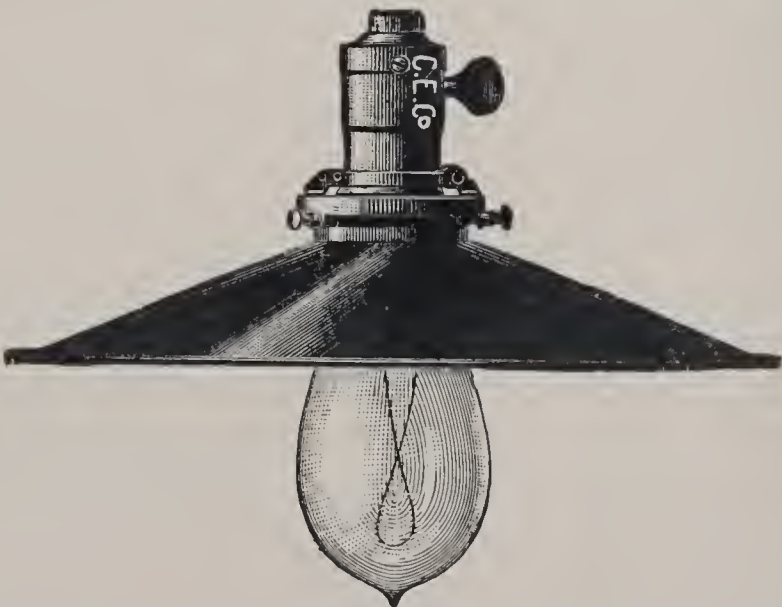


Trade Word.	Diameter, 10 inches.	Depth, 5 inches.	Price.
Adipose.....	per doz., without Holder,		\$5.00



Green Outside, Glossy Enamel White Inside.  
FOR 2 1-4 AND 3 1-4 INCH SHADE HOLDER.

Trade Word.		Price.
Adjacent.	8 inch.....	each, \$1.40
Adjective.	10 “.....	“ 1.60
Adjoin.	12 “.....	“ 2.00



Green Outside, Glossy Enamel White Inside.  
FOR 2 1-4 AND 3 1-4 INCH SHADE HOLDER.

Trade Word.		Price.
Adjourn.	8 inch.....	each, \$0.80
Adjourned.	10 “.....	“ 1.00
Adjourning.	12 “.....	“ 1.30

For Explanation of Trade Word see page 1.







INCANDESCENT ELECTRIC LIGHT SUPPLIES.

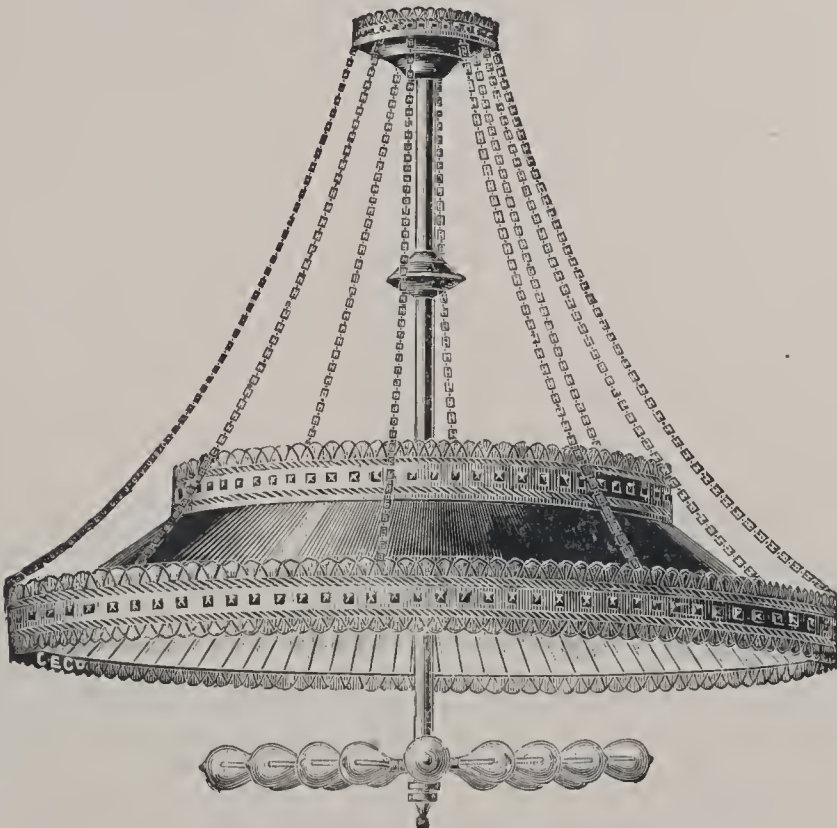
TRIPLE CONE REFLECTOR.



(Prices do not include Lamps.)

Trade Word.	Diameter.	No. of Lights.	Price.
Administer.	40 in . . . . .	12 . . . . .	each, \$ 96.00
Admirable.	50 “ . . . . .	18 . . . . .	“ 128.00
Admiral.	60 “ . . . . .	24 . . . . .	“ 160.00
Admiralty.	72 “ . . . . .	36 . . . . .	“ 232.00
Admiration.	84 “ . . . . .	48 . . . . .	“ 312.00

TRIPLE CONE REFLECTOR.

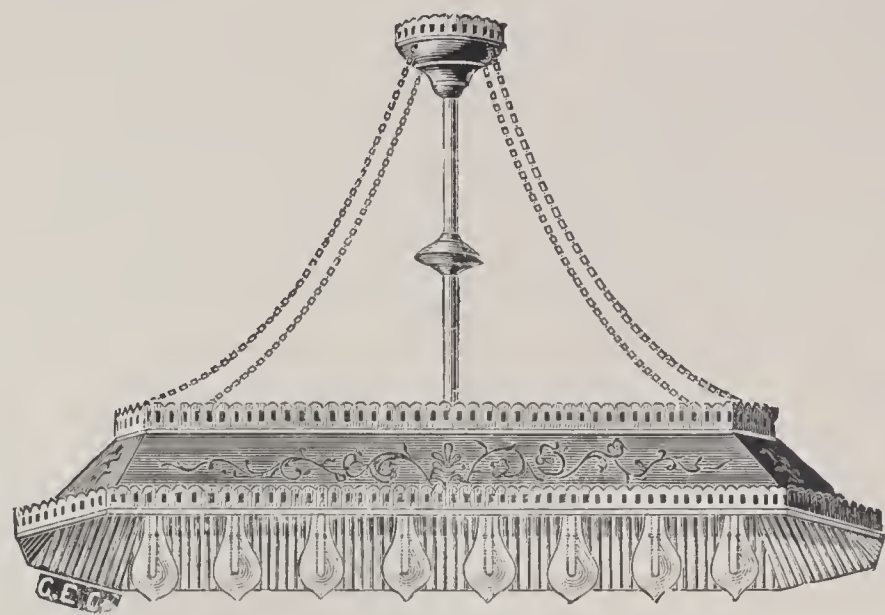


Trade Word.	No. of Lights.	Price.
Admire.	40 in . . . . . 12 . . . . .	each, \$128.80
Admired.	50 “ . . . . . 18 . . . . .	“ 168.00
Admiring.	60 “ . . . . . 24 . . . . .	“ 210.00
Admissable.	72 “ . . . . . 36 . . . . .	“ 294.00
Admission.	84 “ . . . . . 48 . . . . .	“ 400.00

For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

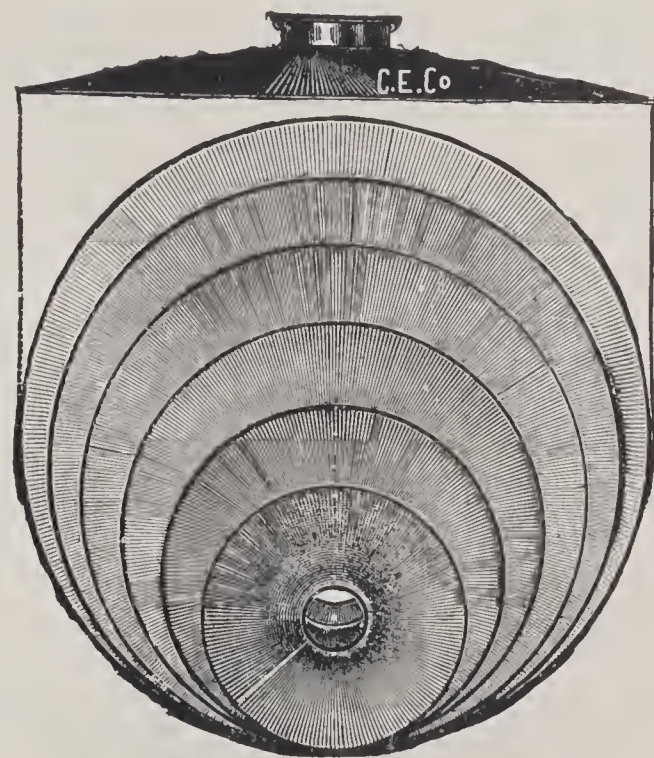
SHOW-WINDOW REFLECTORS.



(Prices do not include Lamps.)

Trade Word.	Length.	No. Lights.		Price.
Admit.	30 inches	4	each,	\$36.00
Admittance.	35 “	6	“	39.00
Admitting.	40 “	8	“	43.60
Admix.	50 “	10	“	49.60
Admonish.	60 “	12	“	56.00
Admonishing.	72 “	16	“	66.00

REFLECTORS.



Green outside. Glossy Enamel White inside.

For 2¼ and 3¼ inch Shade holder.

Trade Word.	Length.		Price.
Admonition.	8 inch	each,	\$0.60
Admonitory.	10 “	“	.70
Adolescence.	12 “	“	.90
Adorable.	14 “	“	1.30
Adoration.	16 “	“	1.70
Adore.	18 “	“	2.10

For Explanation of Trade Word see page 4.

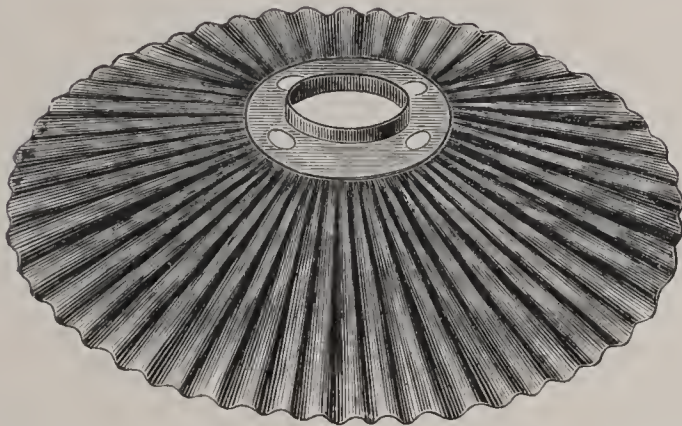


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

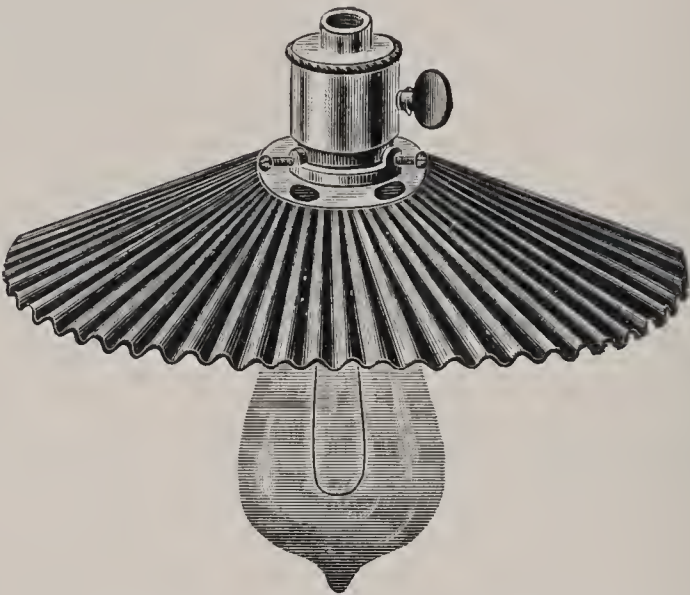
FLUTED TIN REFLECTORS.

Stamped from one piece of tin, and especially adapted for use in factories, mills, billiard rooms, and places where a cheap, unbreakable reflector is desired. No shadeholder required.

GREEN OUTSIDE, SILVERED INSIDE.



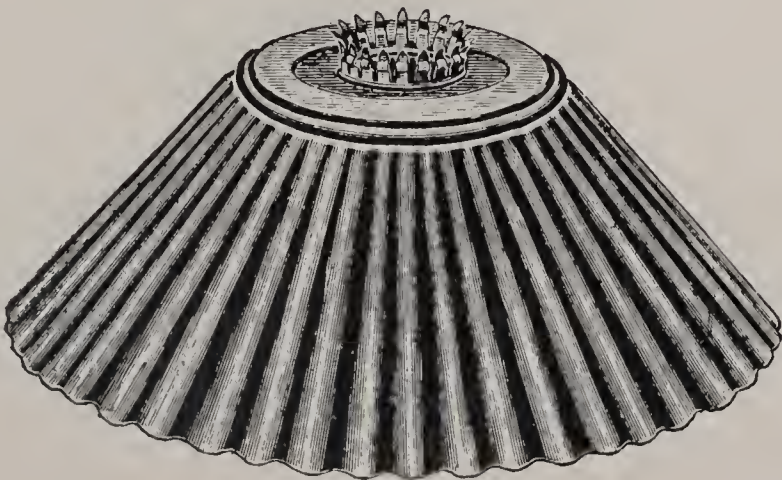
The above Shade is made especially for the Edison Socket.



This Shade will fit any Socket.

Trade Word.		Price.	Trade Word.		Price.
Adorn.	Flat . . . . .	per doz., \$5.00	Adrift.	Flat . . . . .	per doz., \$6.00
Adorned.	Deep Cone . . . . .	“ “ 9.00	Adriftless.	Deep Cone . . . . .	“ “ 7.50

DEEP CONE SHADE.  
TIN.



Will fit any Socket.

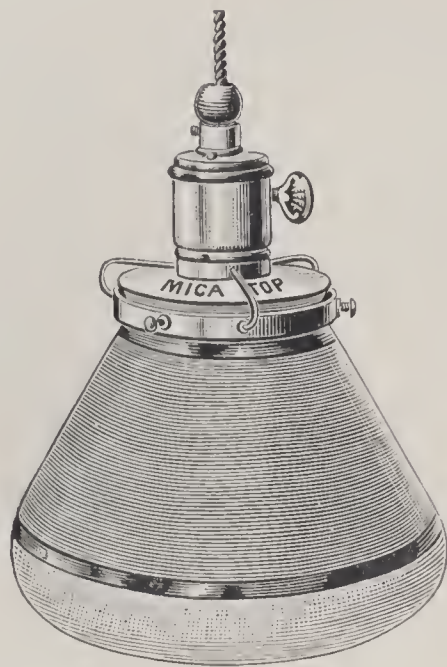
Trade Word,		Price,
Adroit . . . . .	per doz.,	\$12.00

For Explanation of Trade Word see page 4.

# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## GLASS REFLECTOR SHADE,

(SILVERED.)



This cut represents a Reflector Shade for concentrating and increasing artificial light. It is made of the finest flint glass, bell shaped, with convex sides, the whole upper surface being covered with burnished silver, and will never tarnish or oxidize. The bottom is slightly convex and of ground glass. The shades are of great value to all persons engaged in literary or desk work of any kind, as the rays of light are thrown against the silver, and reflecting against the ground glass are broken, the effect being a diffused mass of soft light without direct rays.

Trade Word.

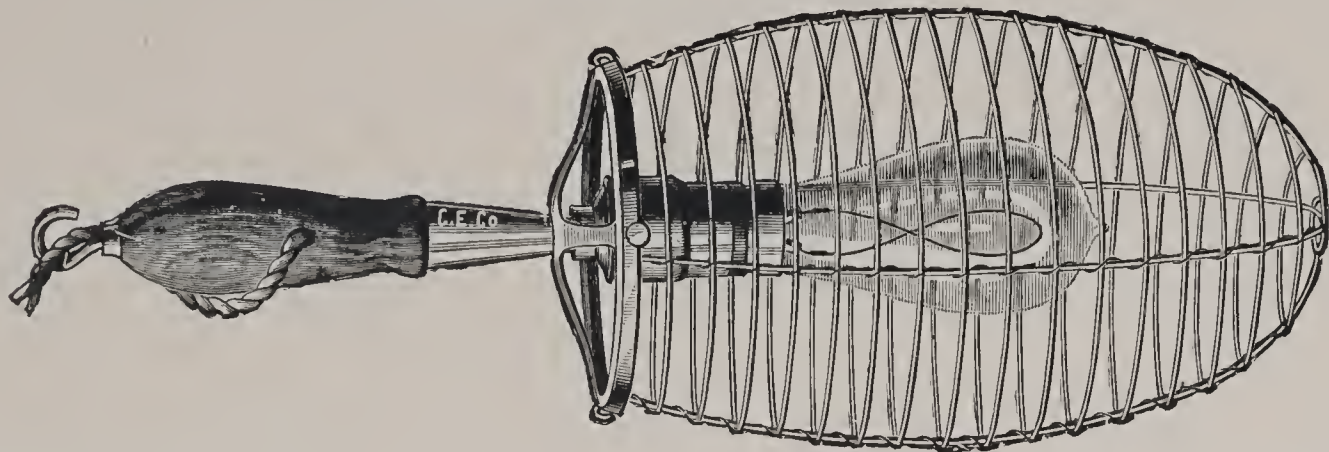
													Price.
Adapter.	7	in.	diam.,	3 $\frac{1}{4}$ -inch	Holder,	for	10,	16,	20	and	24	C. P Lamps,	per doz. \$42.00
Adapting.	8	"	"	3 $\frac{1}{4}$	"	"	"	"	"	"	"	"	48.00
Add.	9	"	"	4	"	"	"	32	C. P. Lamps	.....	"	"	72.00
Addable.	12	"	"	4	"	"	"	50	"	"	.....	"	108.00
Added.	15	"	"	6	"	"	"	100	and	150	C. P. Lamps	..	" 216.00

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

WIRE LAMP GUARD.



Showing Wire Guard and Holder, with Handle, Hook and Socket, and Lamp attached for use with Flexible Cord.

Trade Word.	Description.	Price.
Adroitly.	Guard for 4 inch Holder, Silvered Wire.....	each, \$0.60
Adulation.	“ “ 3 1/4 “ “ “ “ .....	“ .60
Adult.	Holder.....	“ .30
Adulterate.	Handle, fitted with Hook.....	“ .80
Adulteration.	Guard, Holder and Handle, complete.....	“ 1.70

EXPANDING WIRE GUARD.

POLISHED BRASS.

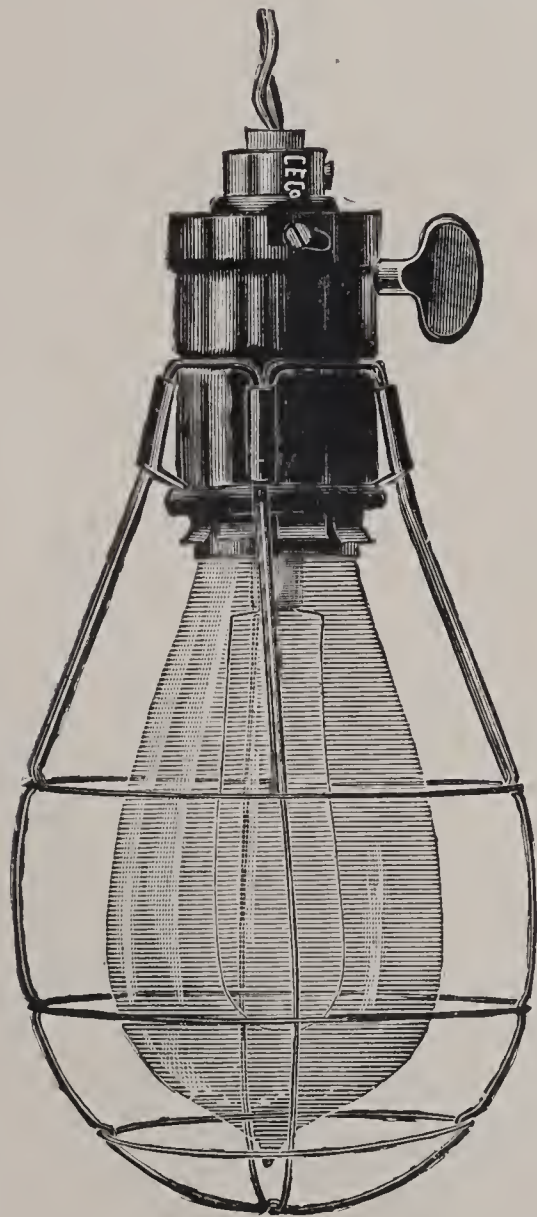


FIG. 1.

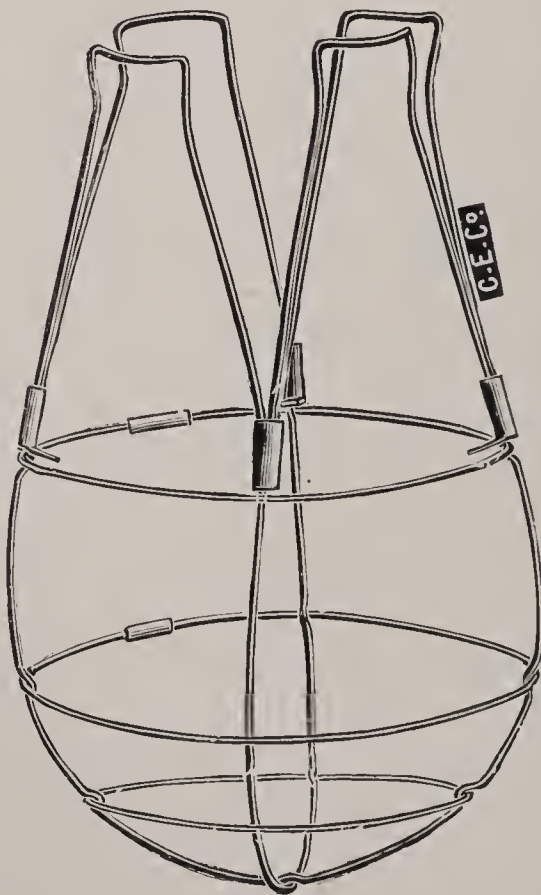


FIG. 2.

Figure 1 shows the Guard on the Lamp. To remove the Guard, slide the metal sleeves down the ribs to the first ring, as shown in Figure 2.

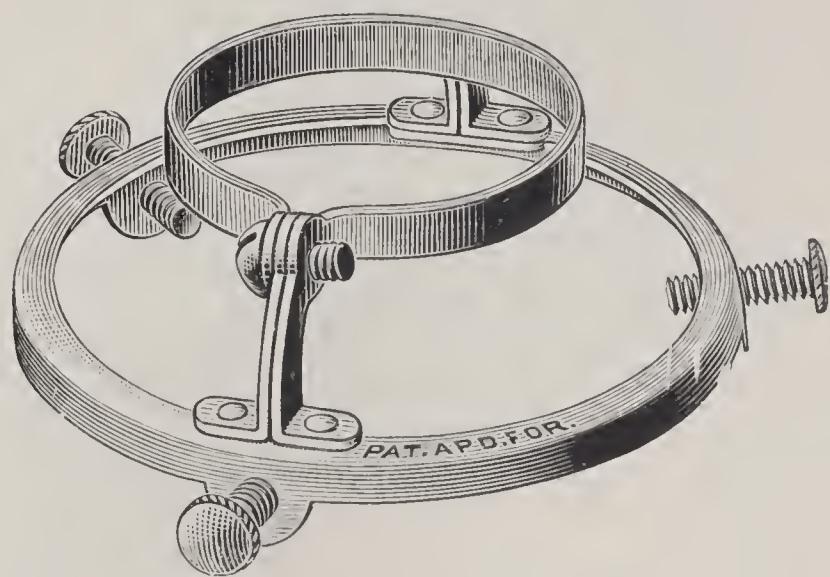
This Guard rather adds to the appearance of the Lamp, casts comparatively no shadow, and requires no holder. Packed one dozen in a box.

Trade Word.	Price.
Advance.....	per doz., \$3.00

For Explanation of Trade Word see page 4.

INCANDESCENT ELECTRIC LIGHT SUPPLIES.

IMPROVED SHADE HOLDER.



These Shade Holders are nicely finished in polished brass, and can be tightly attached to the socket. Unquestionably the most satisfactory article of its class in the market. Made for any standard style of socket.

Trade Word.	Socket.	Size of Shade Opening.	Price.
Advancement.	Westinghouse,	2¼ . . . . .	per gross, \$20.00
Advancing.	“	3¼ . . . . .	“ 25.00
Advantage.	Thomson-Houston,	2¼ . . . . .	“ 20.00
Advantageous.	“	3¼ . . . . .	“ 25.00
Advent.	Edison	2¼ . . . . .	“ 20.00
Adventive.	“	3¼ . . . . .	“ 25.00
Adventure.	United States,	2¼ . . . . .	“ 20.00
Adventurous.	“	3¼ . . . . .	“ 25.00
Adverb.	Schaefer,	2¼ . . . . .	“ 20.00
Adversary.	“	3¼ . . . . .	“ 25.00

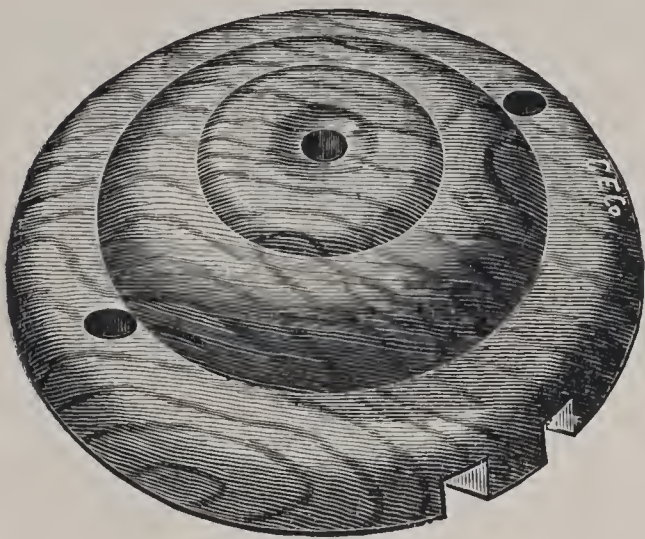
For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

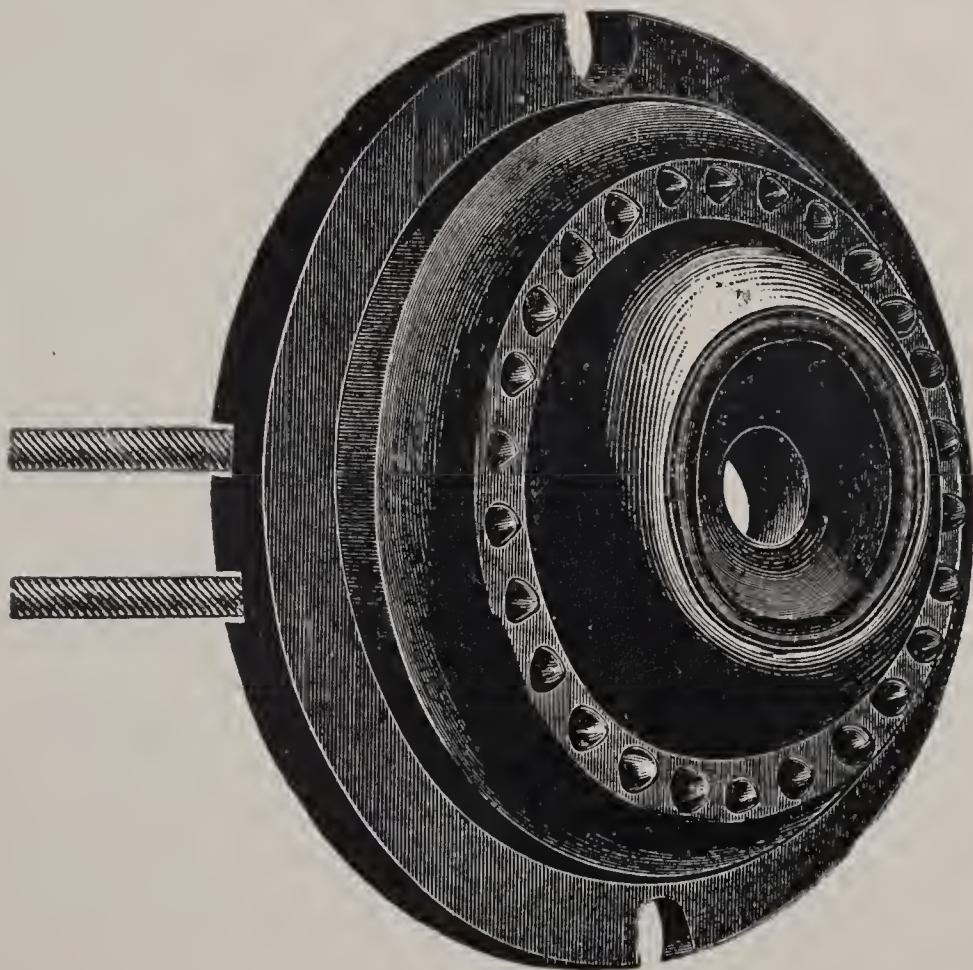
ROSETTES.

WOOD AND PORCELAIN.



Trade Word.		Price.
Advisable.	Maple .....	each, \$0.10
Advised.	Cherry .....	" .12
Advisedly.	Porcelain .....	" .15

ORNAMENTAL CEILING BUTTONS.



These buttons are perfect insulators and impervious to moisture. They are intended for Drop Lights where keyless sockets are used. Are made of glass, in colors of ebony and porcelain, and are highly polished.

Trade Word.	Description.	Price.
Advocacy.	Porcelain, with screws and brass clips. ....	each, \$0.20
Advocate.	Ebony " " " " .....	" .20

For Explanation of Trade Word see page 4.



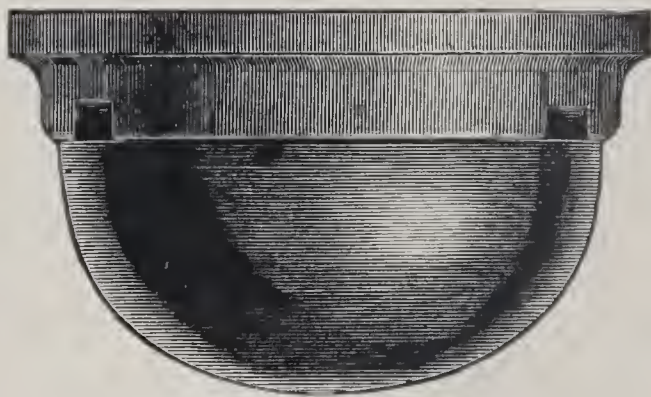
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

STODDARD CEILING ROSETTE CUT-OUT.

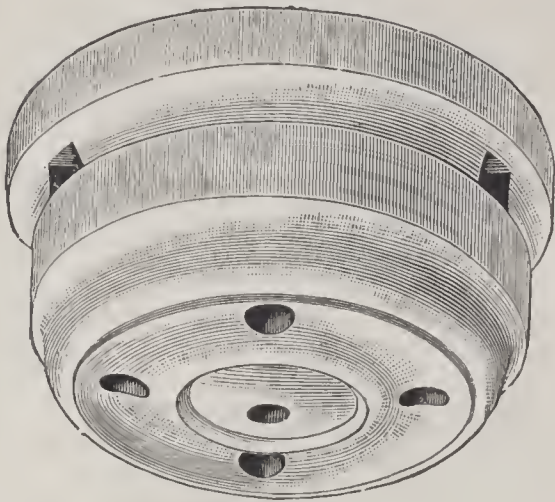
COMPLETE WITH COPPER TIPPED FUSES.

The Fusible Wire and Flexible Cord are attached directly to the removable cap, which connects automatically with the base. This arrangement facilitates mounting pendant lamps and renewing fusible wires.

WOOD.



PORCELAIN.



Trade Word.	Style Base.	Class of Work.	Price.
Afar.	Round, 2	wire cleat.....each,	\$0.50
Afeard.	Square, 2	“ moulding.. “	.50
Affable.	Round, 2	“ concealed.. “	.50
Affair.	Round, 3	“ cleat..... “	.70
Affect.	Square, 3	“ moulding.. “	.70
Affected.	Round, 3	“ concealed.. “	.70

Trade Word.	Style Base.	Class of Work.	Price.
Affecting.	Round, 2	wire cleat.....each,	\$0.50
Affection.	2	“ concealed.. “	.50

VICTOR ROSETTE CUT-OUT.

WOOD.



COMPLETE WITH FUSIBLE WIRE.

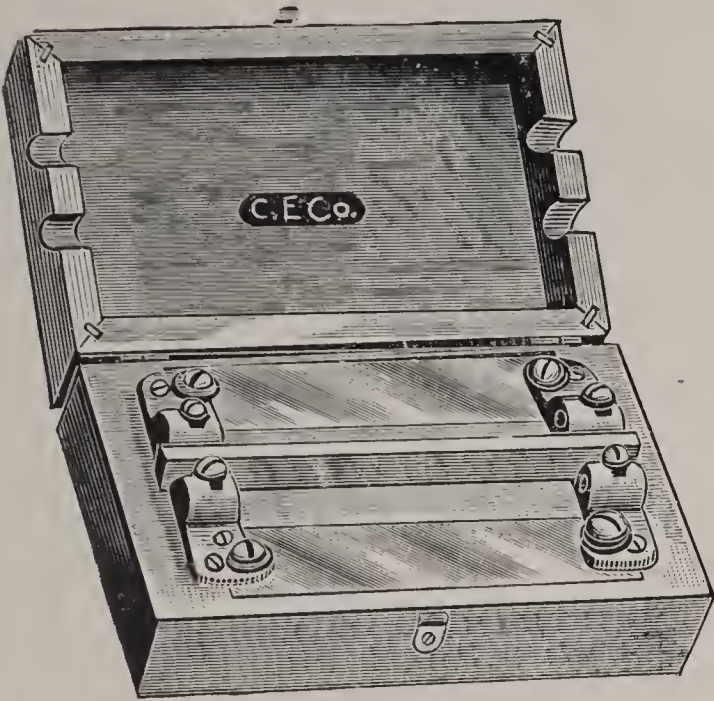
Made in Moulding Pattern, as per above cut, or Concealing Pattern, without wire scores, base being bored for wires same as in a push button.

Trade Word.	Price.
Affectionate. ....	each, \$0.50

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

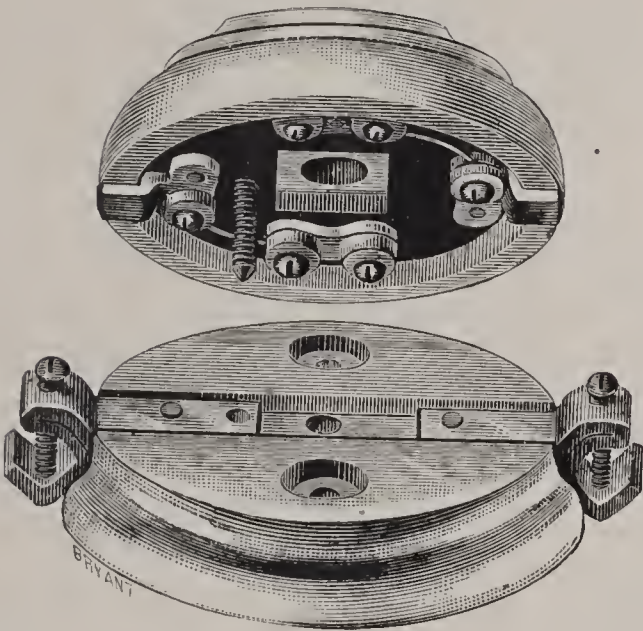


WOOD FUSE BOXES—With Covers.

These Boxes are carefully made, and have plates of mica lining the base. They are applicable to any system. In ordering state the capacity required.

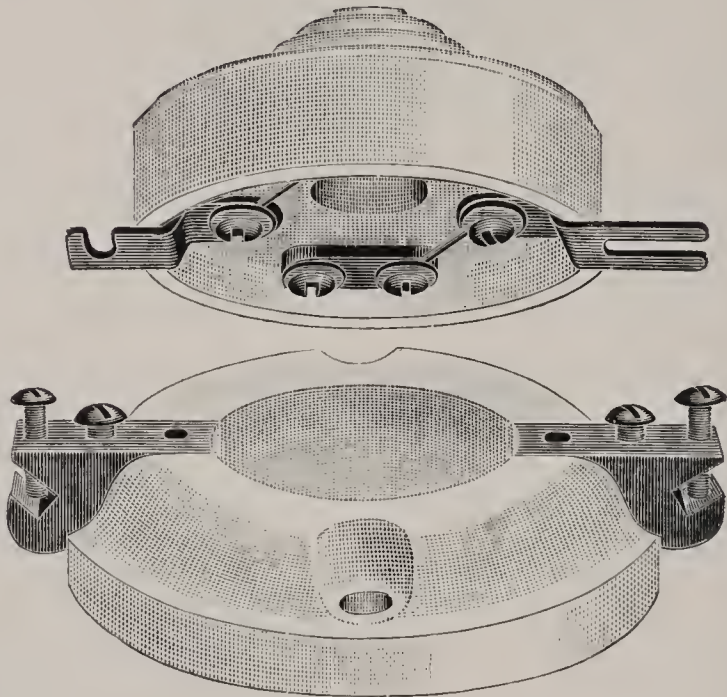
Trade Word.		Price.
Affectionately.	1 to 6 lights.....	\$1.50
Affiance.	10 to 35 “ .....	1.70
Affianced.	40 to 75 “ .....	3.00

THE PAISTE ROSETTE.  
PORCELAIN ONLY.



Trade Word.	Price.
Affiancer.....	each, \$0.60

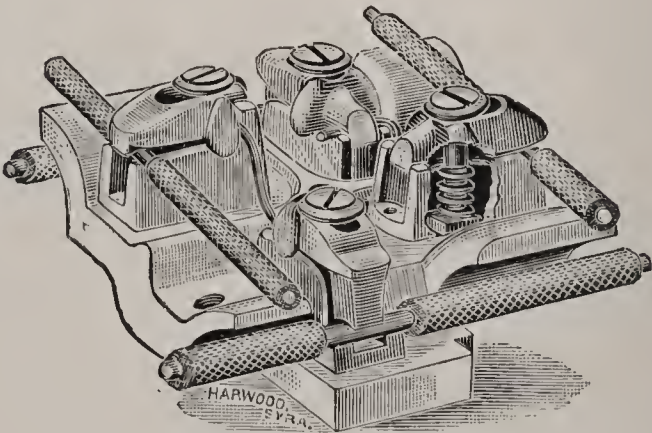
THE K. W. ROSETTE.  
WOOD AND PORCELAIN.



Trade Word.	Price.
Affidavit. Wood .....	each, \$0.50
Affiliate. Porcelain.....	“ .60

SEYMOUR BRANCH BLOCK.  
PORCELAIN BASE.

This Branch Block entirely overcomes all chance for loose connections and consequent blowing of fuses. The brass parts are mounted on the best quality of porcelain, and the spiral springs shown in the cut are so applied that they will not be heated by the current, while they always insure a good connection.



(Patent applied for.)

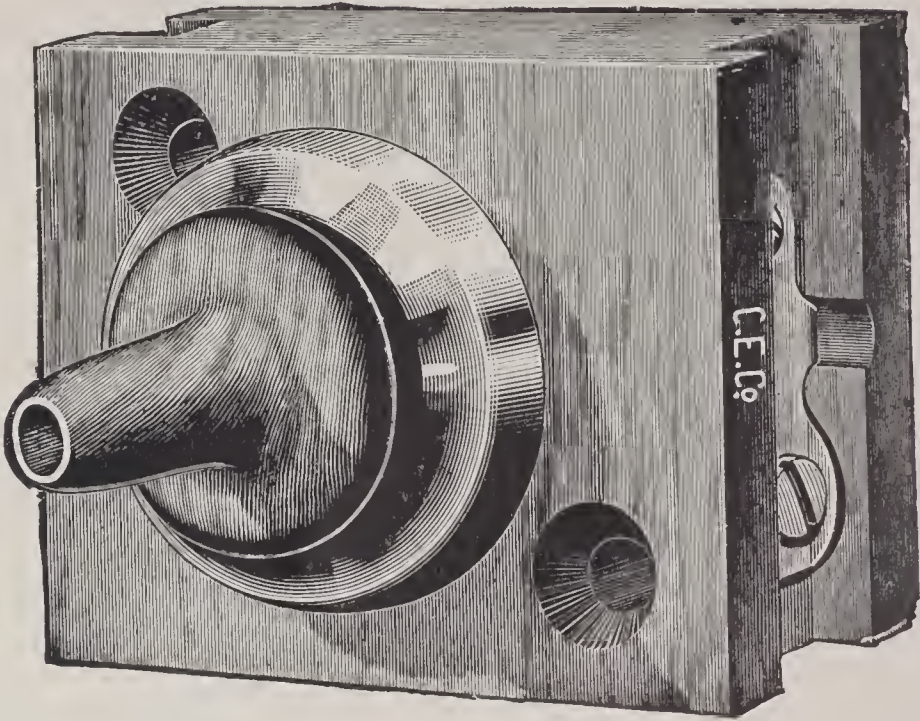
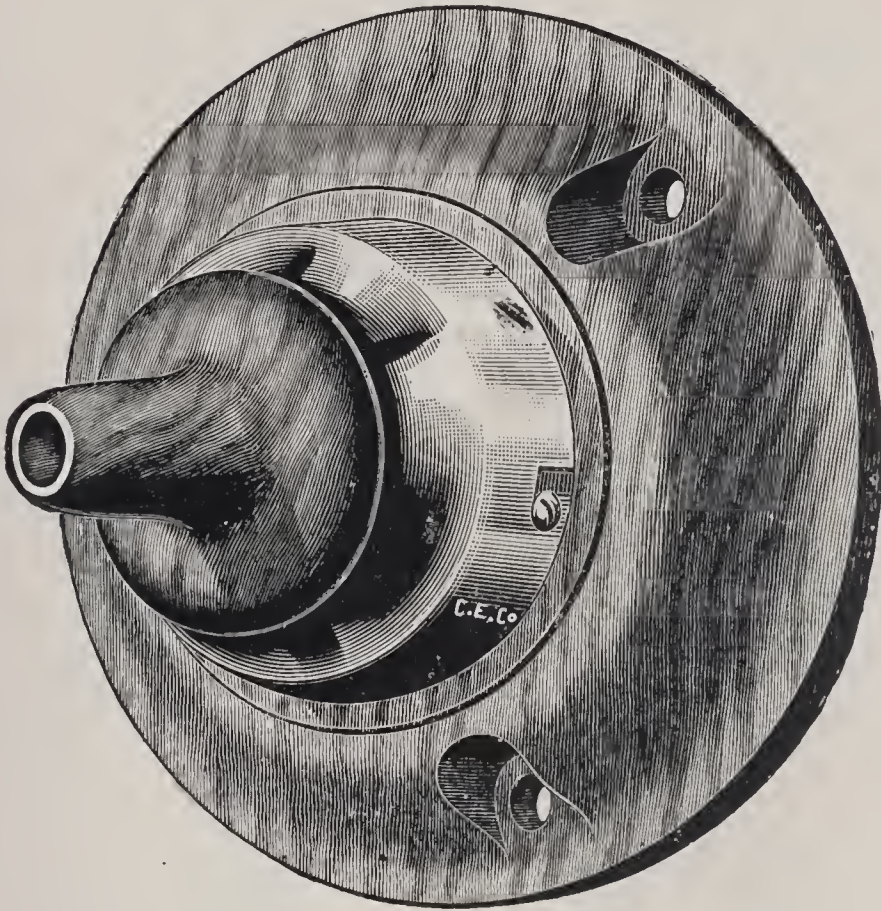
WITHOUT COVERS.					WITH COVERS.				
Trade Word.	Capacity.		Price.		Trade Word.	Capacity.		Price.	
Affinity.	5 Ampères.....	each,	\$1.50		Affixed.	5 Ampères.....	each,	\$1.75	
Affirm.	25 “ .....	“	1.50		Afflict.	25 “ .....	“	1.75	
Affirmation.	50 “ .....	“	1.75		Afflicted.	50 “ .....	“	2.00	
Affirmative.	75 “ .....	“	2.25		Afflicting.	75 “ .....	“	2.50	
Affix	100 “ .....	“	2.50		Affluence.	100 “ .....	“	2.75	

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

DROP CORD CUT-OUTS.

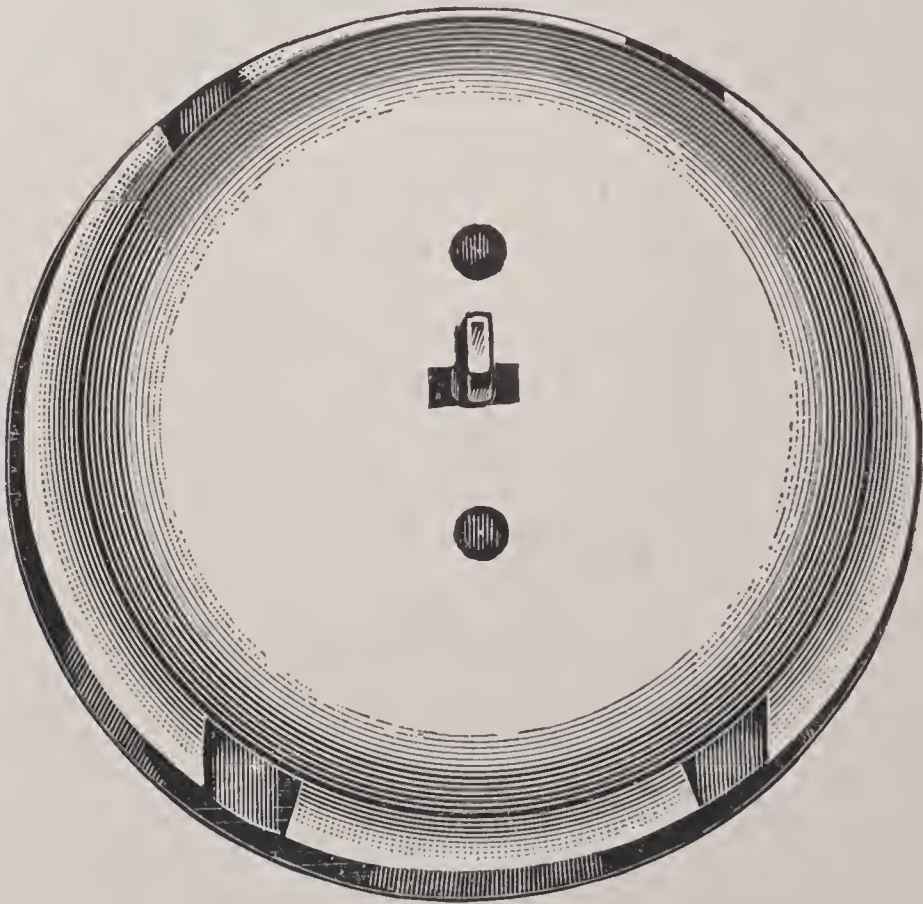
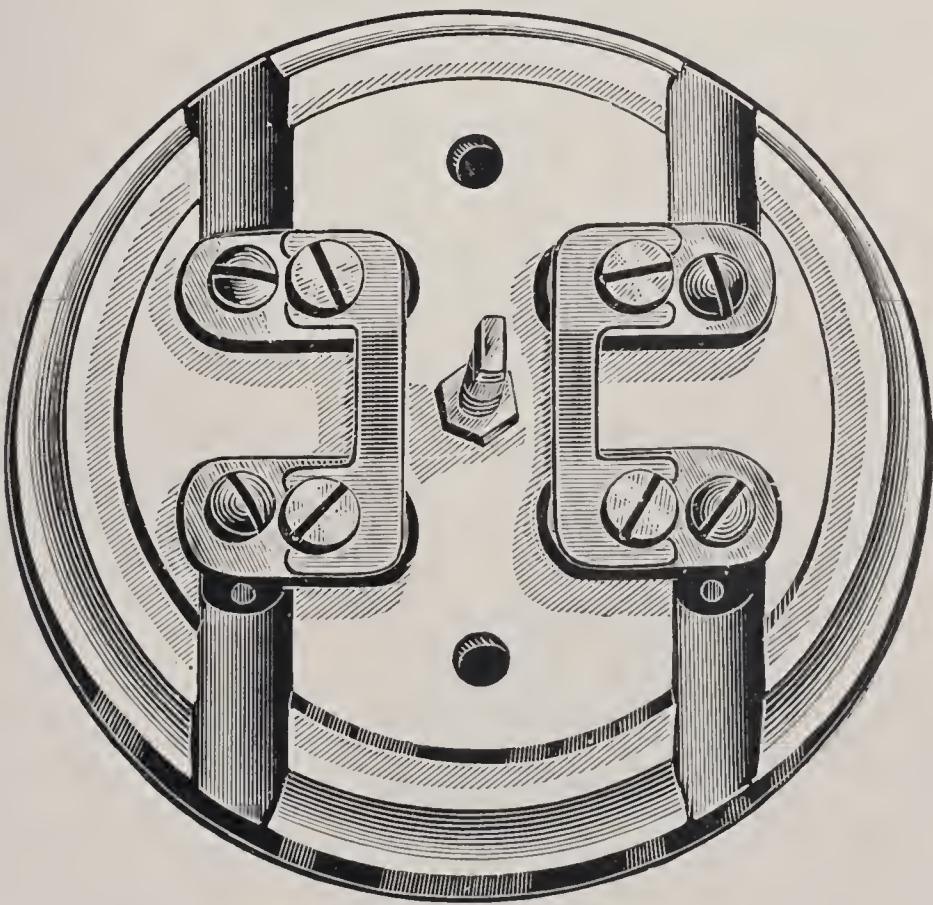


Trade Word.		Price.
Affluent.	Small Size.....	each, \$0.70
Afflux.	Large " .....	" .80

Trade Word.		Price.
Afford .....	each,	\$0.60

THE HAWKEYE CUT-OUT.

ON PORCELAIN BASE.



Trade Word.		Price.
Affording.	20 Ampères.....	each, \$0.60

For Explanation of Trade Word see page 4.

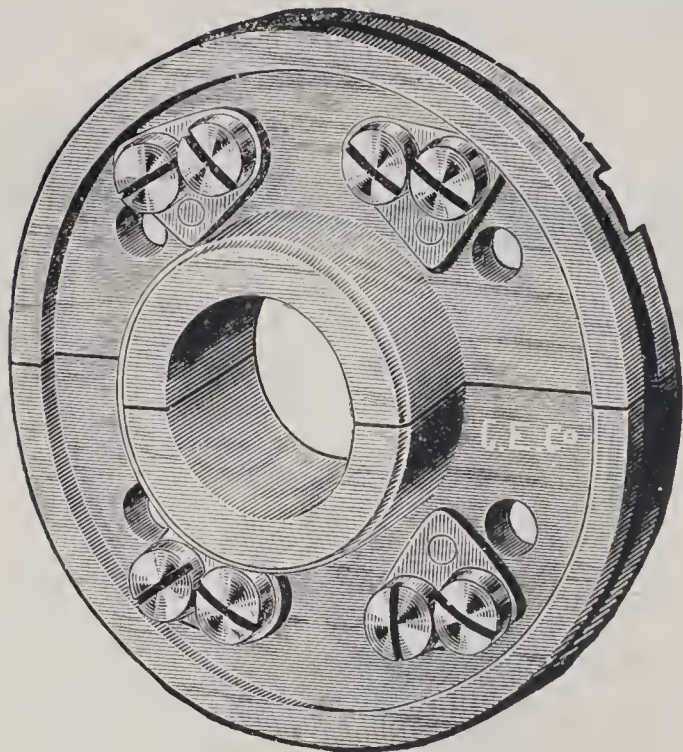






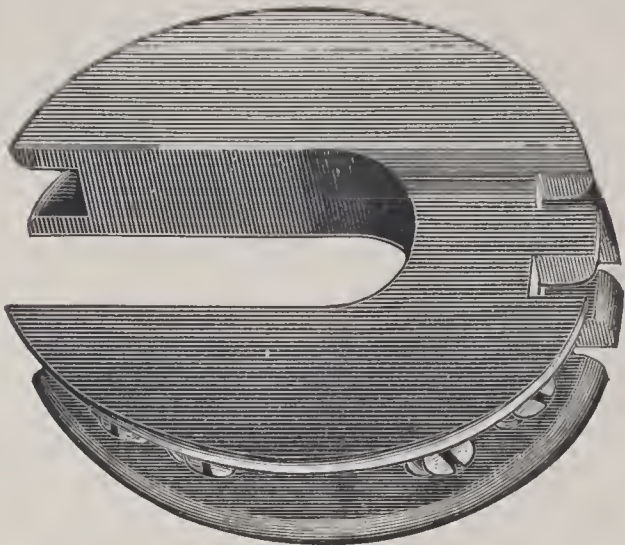
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

CHANDELIER CUT-OUT.



ROUND BASE.

Trade Word.	Size.	Price.
Agitating.	2½ in. diam., 5/8 in. core...	each, \$0.70
Agonize.	3 " " 3/8 " " ... "	.90



Diam. 2½ in., Opening 1¼ in.

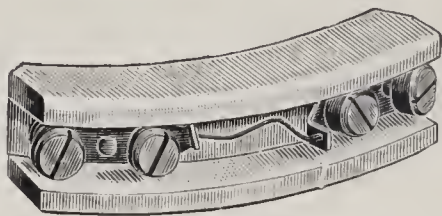
HORSESHOE BASE.

Trade Word.	Price.
Agony.....	each, \$0.60

TRIANGULAR BASE CUT-OUT.

Trade Word.	Price.
Agree.....	each, \$0.50

N. S. FIXTURE CUT-OUT.



2/3 SIZE.

Complete with Copper Tipped Fuses.

Made of non-carbonizable material, requires no taping or soldering, and cuts off grounds or short circuits occurring on fixtures to which attached.

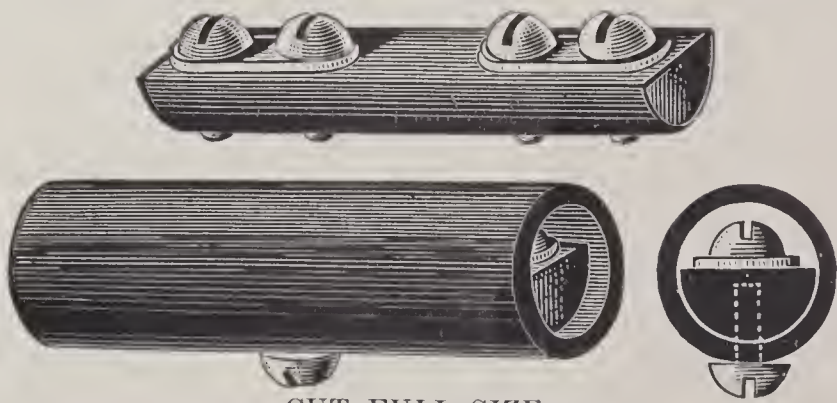
Trade Word.	Price.
Agreeable.....	each, \$0.30

HARD RUBBER FIXTURE CUT-OUT.

Same shape as above, but without fuses.

Trade Word.	Price.
Agreeability.....	each, \$0.25

"MIDGET" COVERED FIXTURE CUT-OUT.



CUT FULL SIZE.

Dimensions	{	Length (over all) of cut-out,	1 9/16 in.
		" " cover,	1 11/16 "
		External Diameter of "	9/16 "
		Internal " " "	7/16 "

We have just brought out this Hard Rubber cut-out for Electrolier and Gas Fixture Work. and to conform with the requirements of the Fire Underwriters.

The screw which holds the cover in place is tapped into both the cut-out and cover, and does not drop out and get lost, when loosened to remove the cover. It is substantially and well made, and while small size is the chief feature, the design provides for ample fusing break, long screw threads, and sufficient room inside the cover for the wire.

Trade Word.	Price.
Agreeableness.....	each, \$0.30

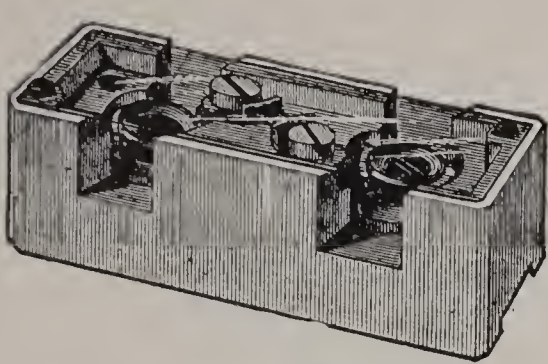
For Explanation of Trade Word see page 4.



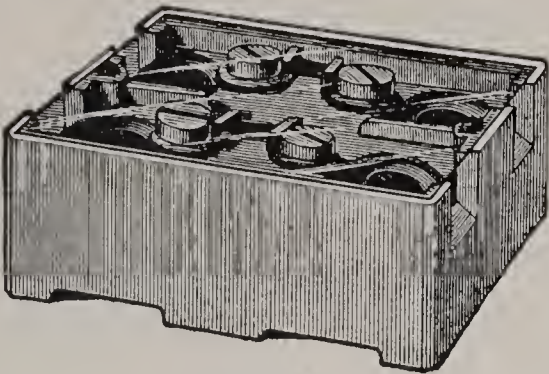
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

EDISON PATENTED LINK CUT-OUTS.

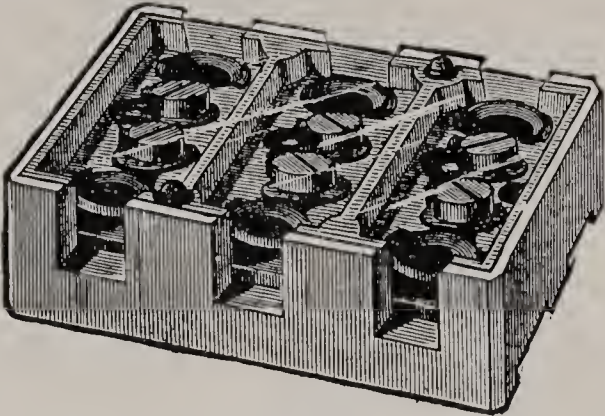
ON INCOMBUSTIBLE (PORCELAIN) BASES, AND WITH MICA COVERS.



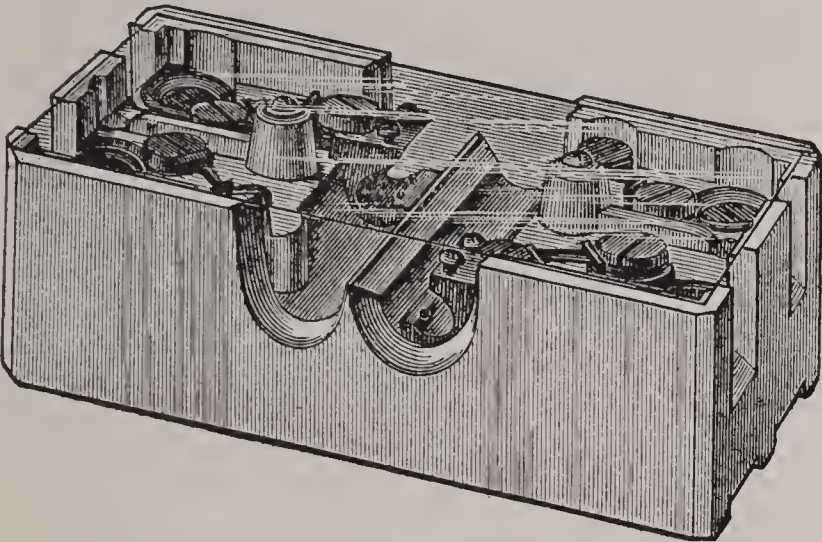
No. 1569.



No. 1565.



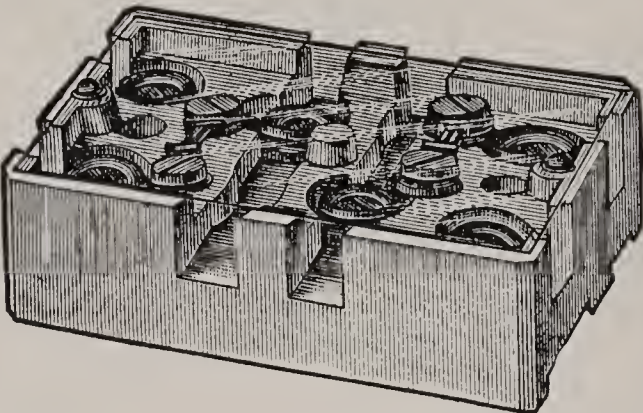
No. 1365.



No. 1587.



No. 1733.

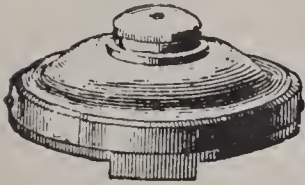


No. 1535.

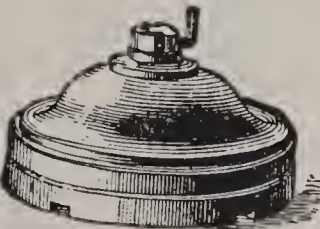
Trade Word.	No.	Description	Price.
Agreeably.	No. 1565.	Porcelain Main Line Double Pole Cut-Out, 1 to 125 Lights, 1 to 75 ampères.....	\$1.65
Agreeing.	" 1365.	" Three Wire Main Line " 1 " 125 " 1 " 75 " .....	2.25
Agreement.	" 1569.	" Single Pole " 1 " 125 " 1 " 75 " .....	1.10
Aground.	" 1587.	" Double Pole Double Branch " 1 " 125 " 1 " 75 " .....	6.25
Ague.	" 1535.	" Branch Double Pole " 1 " 125 " 1 " 75 " .....	2.25
Aid.	" 1733.	Safety Catch Links, with Copper Terminals, for above, 50 to 125 Lights, 30 to 75 ampères.....each,	.16

The above Cut-Outs and Safety Catch Links are designed to protect a circuit of not over 125 volts.

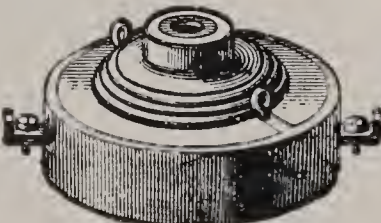
PATENTED CEILING CUT-OUTS.



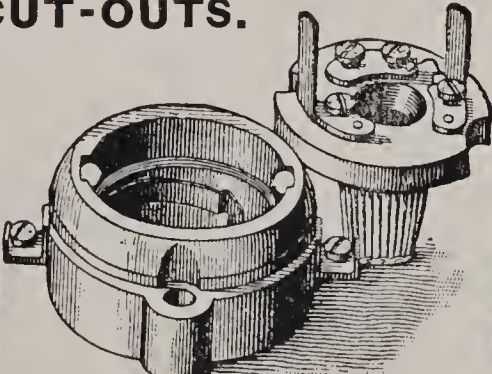
No. 150.



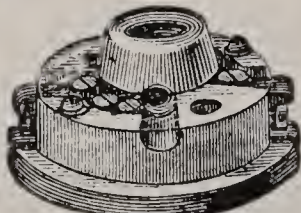
No. 150 1/2.



No. 150 3/4.



No. 397.



No. 497.

Trade Word.	No.	Description	Price.
Aiding.	No. 150.	Ceiling Cut-Out Connecting Block, for Flexible Pendants, with Connections on Wooden Base, Plain.....	\$0.40
Aidless.	No. 150.	Ceiling Cut-Out Connecting Block, for Flexible Pendants, with Connections on Wooden Base, Polished Brass.....	.45
Ail.	No. 150 1/2.	Ceiling Cut Out Connecting Block, for Flexible Pendants, with Connections on Wooden Base, Plain....	.40
Ailing.	No. 150 1/2.	Ceiling Cut-Out Connecting Block, for Flexible Pendants, with Connections on Wooden Base, Polished Brass.....	.45
Ailment.	No. 150 3/4.	Ceiling Cut-Out Connecting Block, for Flexible Pendants, with Connections on Wooden Base, Plain.....	.40
Aim.	No. 150 3/4.	Ceiling Cut-Out Connecting Block, for Flexible Pendants. with Connections on Wooden Base, Polished Brass.....	.45
Aiming.	No. 397.	Porcelain Ceiling Cut-Out Connecting Block, for Flexible Pendants, including Safety Lead,	.65
We call particular attention to this new Porcelain Pendant Safety Catch Block. It is designed to supersede No. 150, and is suitable for use in either dry or wet places, being so constructed that the moisture from the ceiling will drip from the block without getting at the inside contacts. Its outside contact pieces save making splices on the lines in order to connect the block. It has a detachable piece to which the silk cord is attached and the knot tied and in which the safety lead is inserted. This piece, being placed in the block proper and given a quarter turn, is securely locked and will not get loose. Connection is made between the two parts by sliding contacts which keep always bright and clean.			
Aimless.	No. 497.	Porcelain Ceiling Cut-Out Connecting Block, for Flexible Pendants, including Safety Lead,	.53

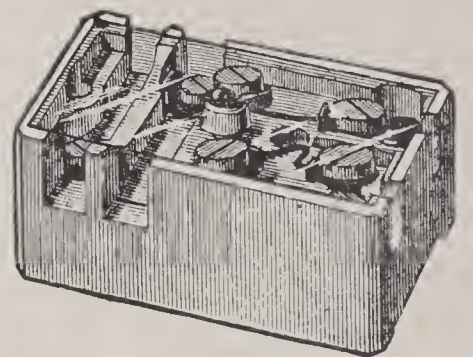
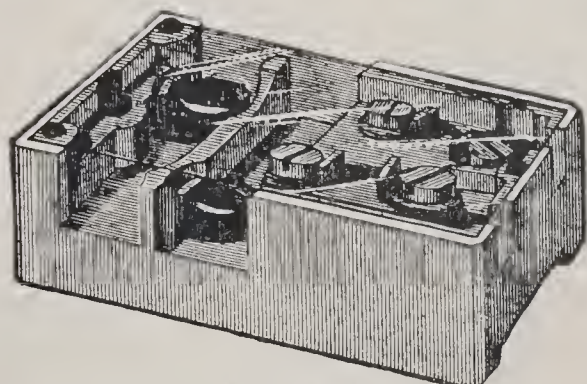
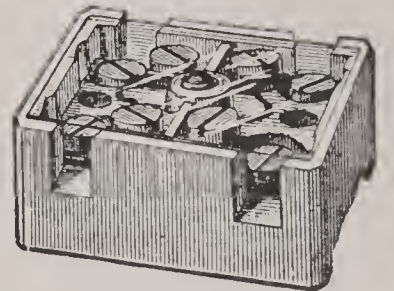
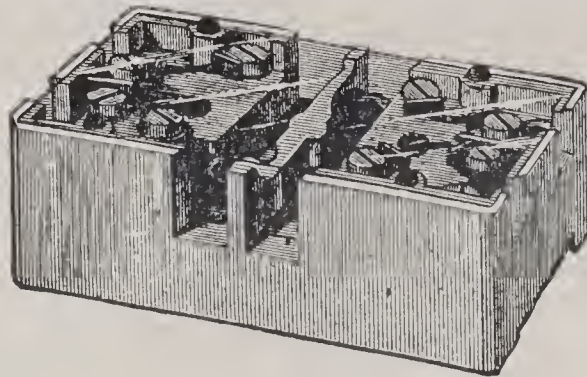
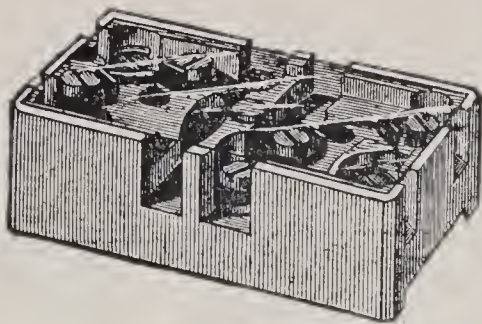
For Explanation of Trade Word see page 4.



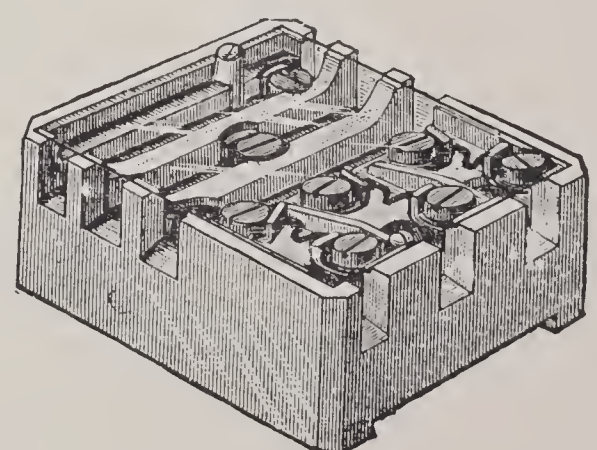
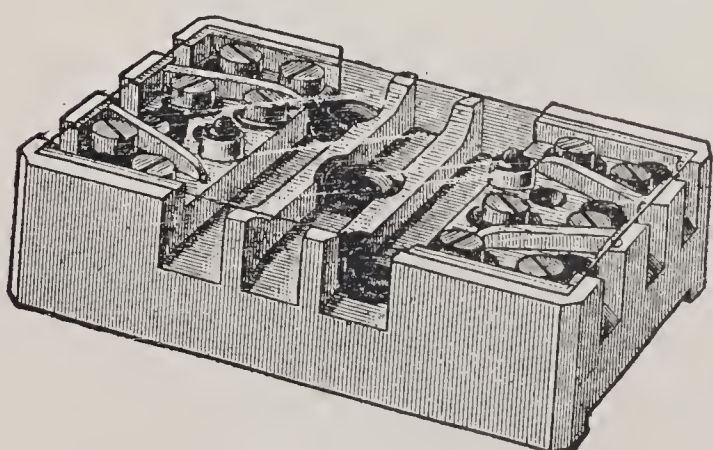
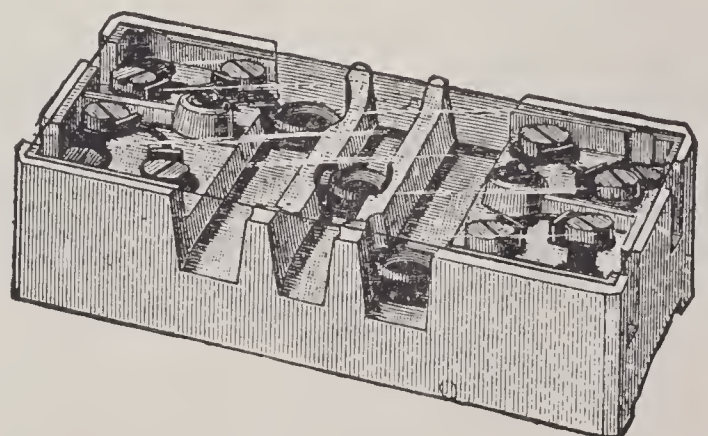
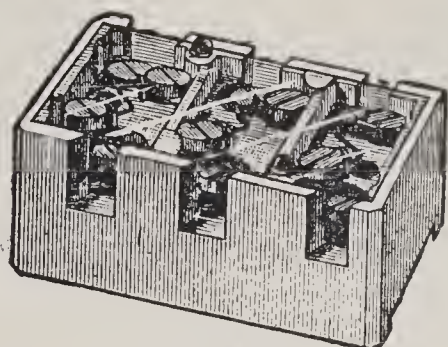
# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## EDISON PATENTED LINK CUT-OUTS.

**ON INCOMBUSTIBLE (PORCELAIN) BASES AND WITH MICA COVERS.**



Trade Word.	No.	Description.	Price.
Air.	No. 1435.	Porcelain Branch Double Pole Cut-Out, 1 to 50 lights, 1 to 30 ampères.....	\$0.90
Airily.	" 1465.	" Main Line " " " 1 " 50 " 1 " 30 " .....	.77
Airing.	" 1835.	" Branch " " " 1 " 50 " 1 " 30 " with extra large connectors for main wire.....	1.15
Aisle.	" 1487.	Porcelain Double Pole Double Branch, 1 to 50 lights, 1 to 30 ampères..	1.80
Ajar,	" 2835.	" Branch Double Pole Cut-Out 1 " 50 " 1 " 30 " .....	1.05



Trade Word.	No.	Description.	Price.
Akin.	No. 1265.	Porcelain Three-Wire Main Line Cut-Out, 1 to 50 lights, 1 to 30 ampères.....	\$1.10
Alabaster.	" 1235.	" " Branch " 1 " 50 " 1 " 30 " .....	2.00
Alacrity.	" 2235.	" " Single Branch Cut-Out, 1 to 50 lights, 1 to 30 ampères.....	1.80
Alarm.	" 1299.	" " Multiple-Arc " 1 " 50 " 1 " 30 " .....	1.80
Alarming.	" 1723.	Safety Catch Links, with Copper Terminals, for above, 1 to 25 lights, 1 to 15 ampères...	.10
Alarmist.	" 1725.	" " " " " " " 25 " 50 " 15 " 30 " ...	.14

The above Cut-Outs and Safety Catch Links are designed to protect a circuit of not over 125 volts.

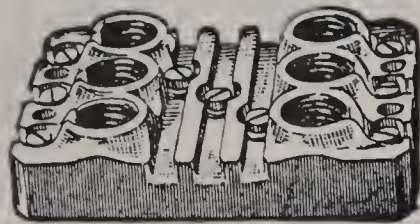
**For Explanation of Trade Word see page 4.**



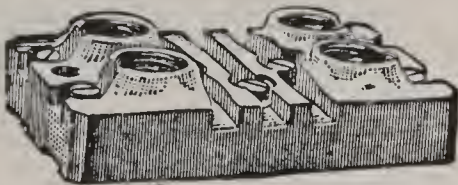
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

EDISON PATENTED PLUG CUT-OUTS.

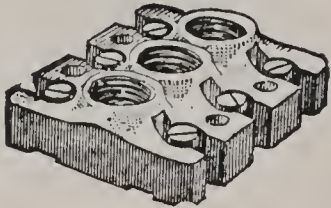
ON INCOMBUSTIBLE (PORCELAIN) BASES, CAPACITY, 1 TO 30 LIGHTS.



No. 2135.



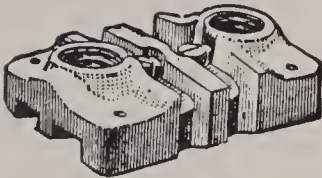
No. 2199.



No. 2165.



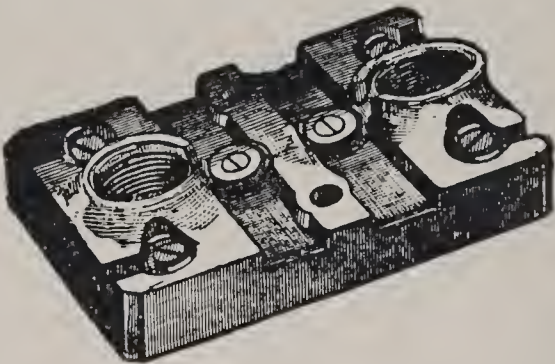
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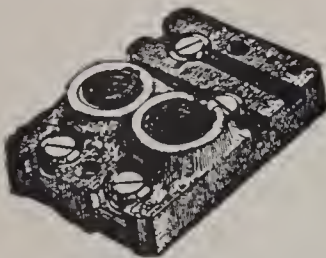
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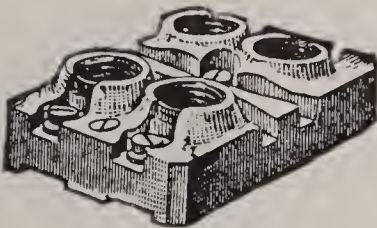
No. 181



No. 3935.



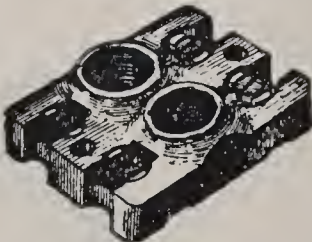
No. 1935.



No. 2587.



No 2569.



No. 2965.

Trade Word.												Price.
Alas.	No. 2965.	Main Line Double Pole Cut-Out, for No. 181 Plugs, 1 to 30 Lights, each,										\$0.70
Albatross.	“ 2935.	Branch “ “ “ 181 “ 1 “ 30 “ “										.80
Albion.	“ 2945.	Branch (Cleat) “ “ “ 181 “ 1 “ 30 “ “										.80
Album.	“ 1935.	“ “ “ “ 181 “ with all surface connec-										
		tions. Specially adapted for Switch Board Work, 1 to 30 Lights, each,										.80
Albumen.	“ 3935.	Branch Double Pole Cut-Out, for No. 181 Plugs, with all surface con-										
		nections and extra large Binding Screws for Mains, 1 to 30 Lights, each,										1.05
Alchemy.	“ 2587.	Two-Branch Double Pole Cut-Out, for No. 181 Plugs, 1 to 30 Lights, “										1.35
Alcohol.	“ 2569.	Single Pole Main Line or Pendant Cut-Out, for No. 181 Plugs, “										.46
Alcove.	“ 2165.	Three-Wire Main Line Cut-Out, for No. 181 Plugs, 1 to 30 Lights, “										1.00
Alderman.	“ 2135.	“ Branch “ “ 181 “ 1 “ 30 “ “										2.00
Alert.	“ 2199.	“ Multiple-Arc “ “ 181 “ 1 “ 30 “ “										1.80
Algebra.	“ 181.	Safety Plugs to fit above, Glass, 1 to 30 Lights.....										.13

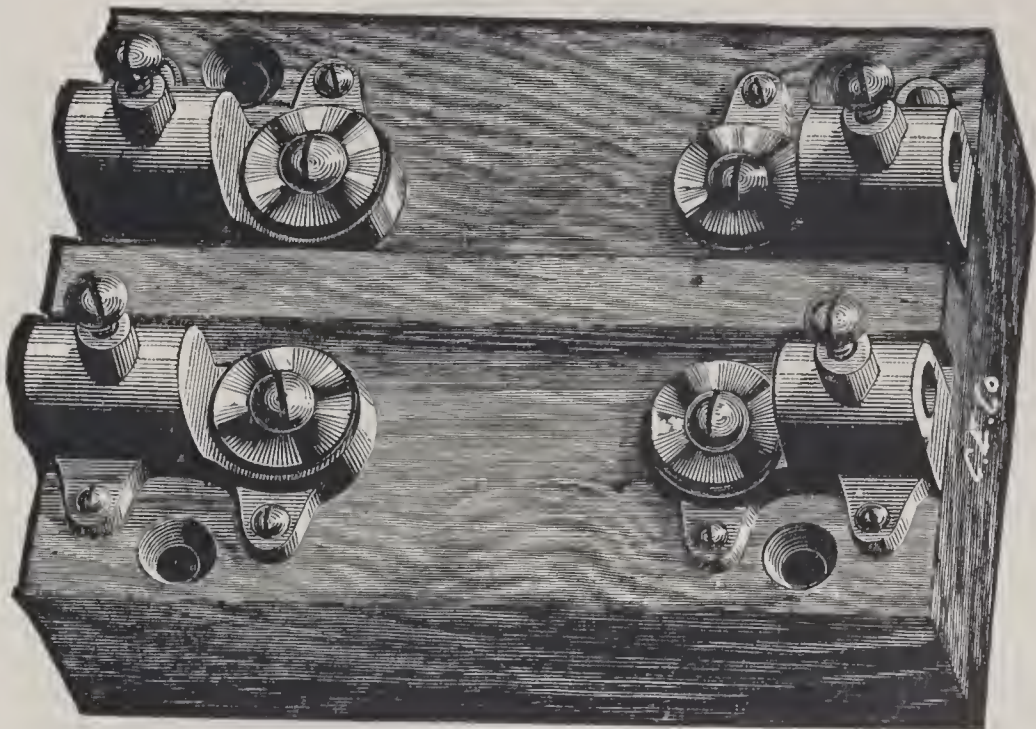
The above Cut-Outs are designed to protect a circuit of not over 125 volts.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

MAIN CUT-OUT.  
WITH WOODEN BASE.



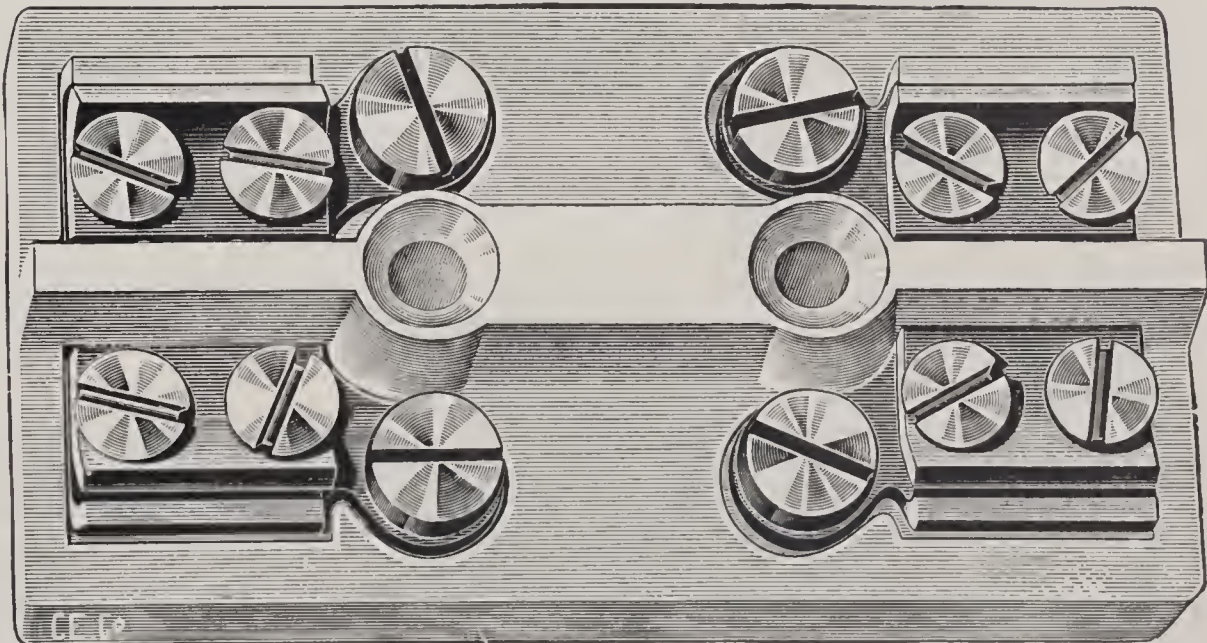
Trade Word.	Capacity.		Price.
Alibi.	5 Ampères	.....each,	\$0.60
Alien.	10	....."	.70
Alienate.	20	....."	.80
Alight.	35	....."	1.10
Alike.	75	....."	1.90
Alimony.	150	....."	6.00

RUBBER BASE FUSIBLE CUT-OUT.



Trade Word.	Price.
Alive. ....	.....each, \$0.20

MAIN CUT-OUT.  
WITH PORCELAIN BASE.



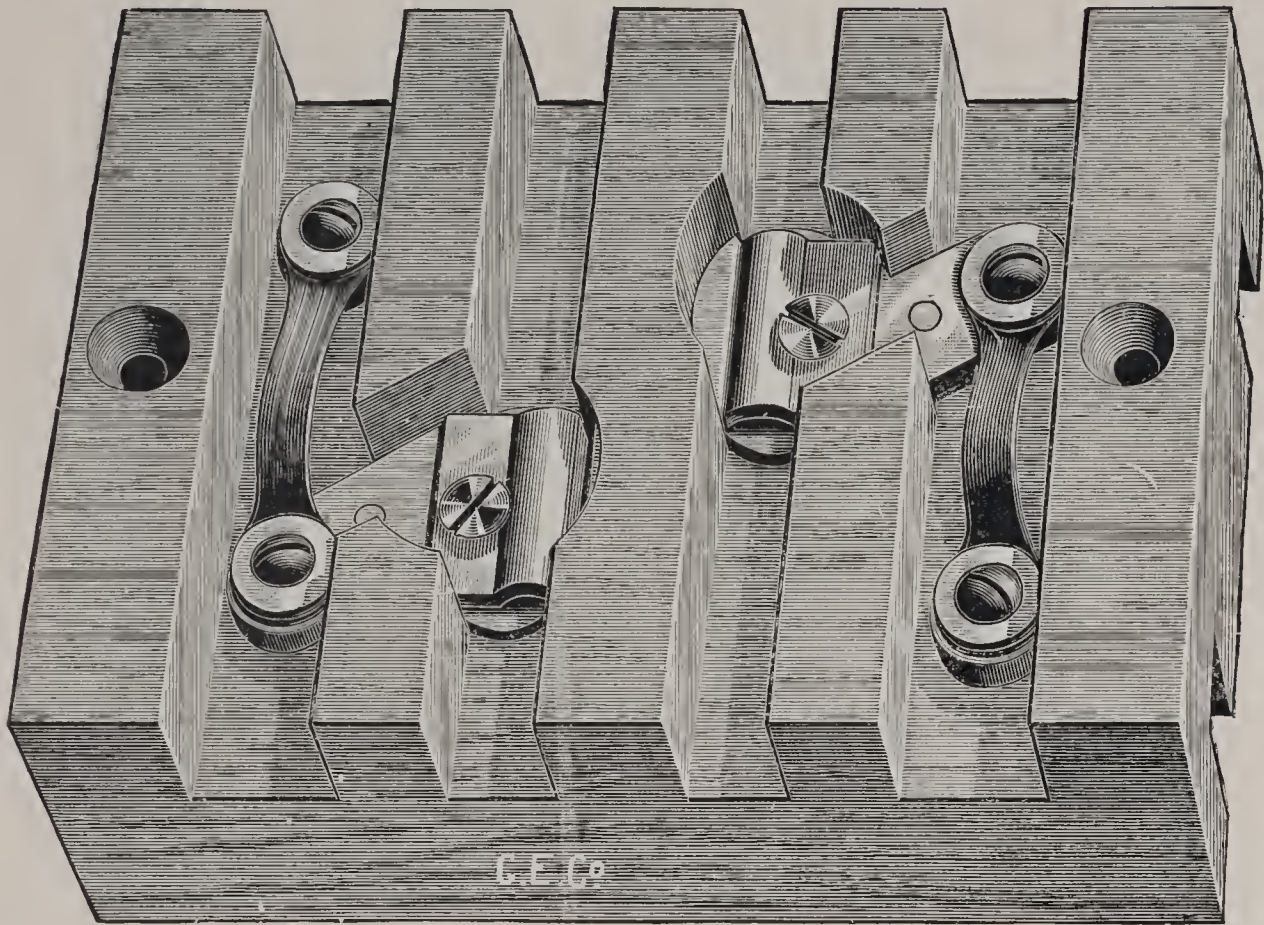
Trade Word.	Capacity.		Price.
Allay.	10 Ampères	.....each,	\$0.90
Allegation.	25	....."	1.20
Allege.	50	....."	1.70
Alleging.	100	....."	2.70

For Explanation of Trade Word see page 4.



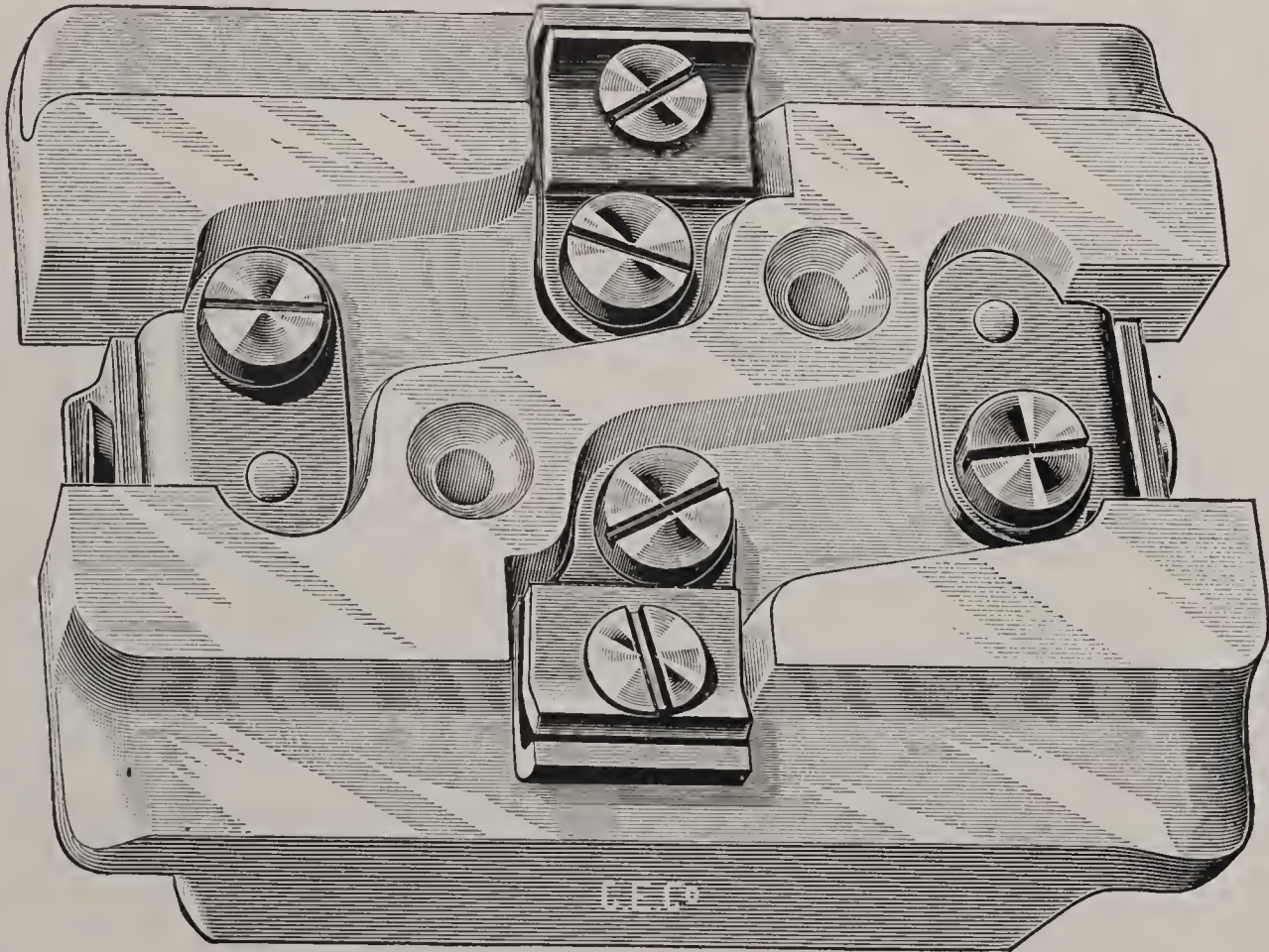
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

BRANCH BLOCK.  
WITH WOODEN BASE.



Trade Word.	Capacity.		Price.
Allegory	5 Ampères	.....	each, \$0.60
Alleviate.	20 "	.....	" 1.00
Alley.	50 "	.....	" 1.40
Alliance.	100 "	.....	" 2.30
Alligator.	150 "	.....	" 6.50

BRANCH BLOCK.  
WITH PORCELAIN BASE.



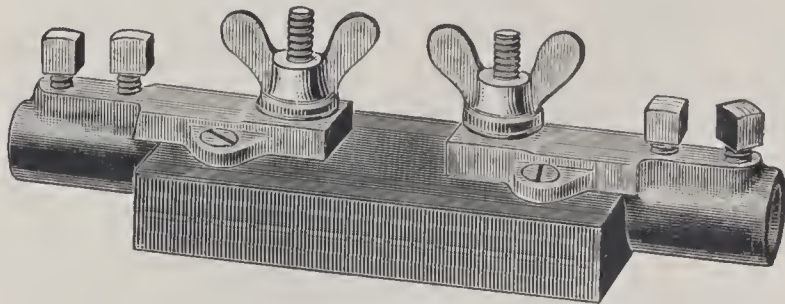
Trade Word.	Capacity.		Price.
Allot.	10 Ampères	.....	each, \$0.90
Allotment.	25 "	.....	" 1.20
Allotted.	50 "	.....	" 2.00

For Explanation of Trade Word see page 4.



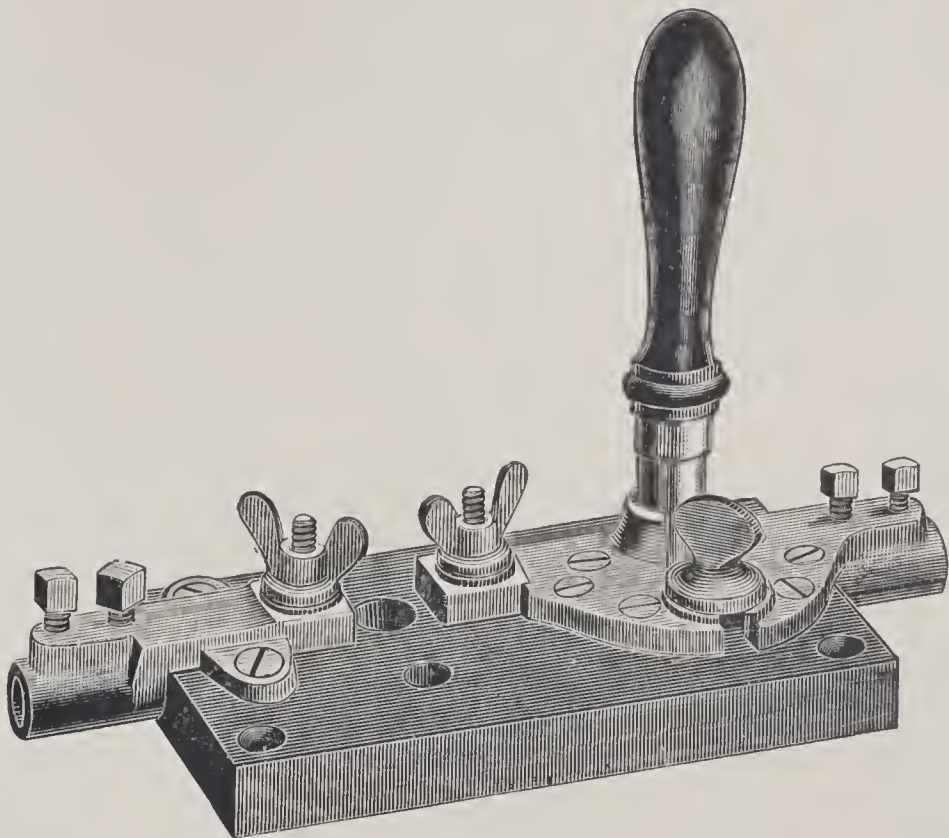
INCANDESCENT ELECTRIC LIGHT SUPPLIES.

SAFETY CATCH HOLDER.



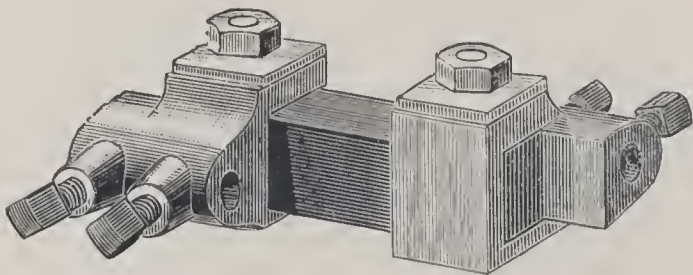
Trade Word.		Price.
Allow.	On Wood.....	\$2.40
Allowable.	On Soapstone.....	2.65

FEEDER PLUG SWITCH AND SAFETY CATCH HOLDER.



Trade Word.		Price.
Allowance.	$\frac{3}{8}$ inch Plug, on Wood Base.....	\$5.00
Allowing.	$\frac{3}{8}$ " " on Soapstone Base .....	6.50

SAFETY CATCH HOLDER.



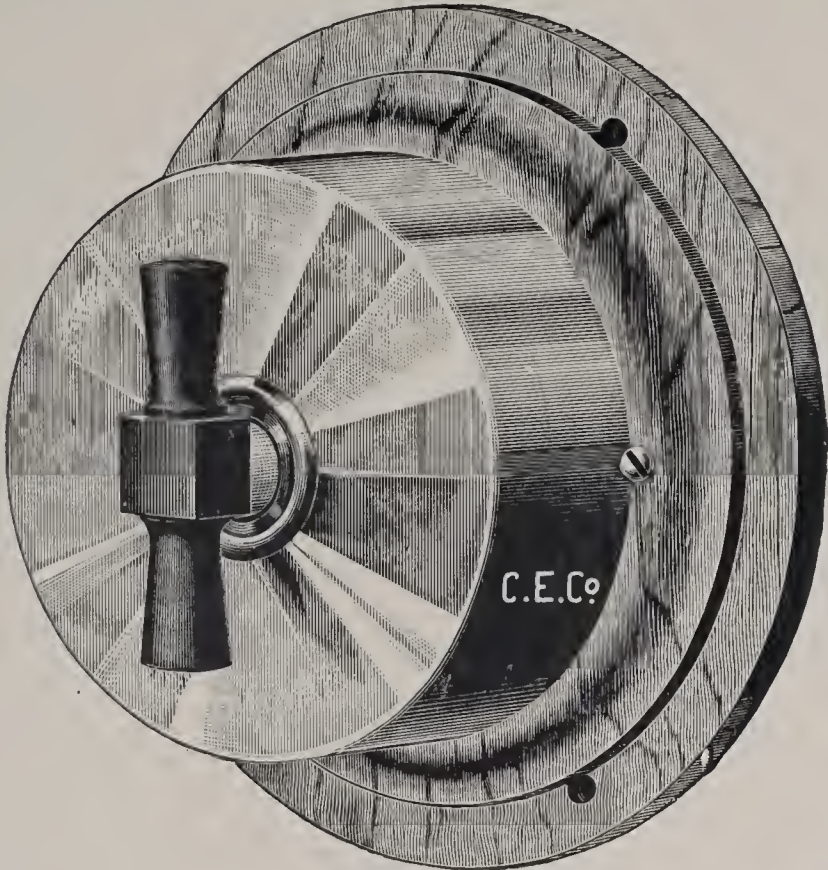
Trade Word.		Price.
Allude.	For $\frac{1}{4}$ inch Wire.....	each, \$1.90
Alluding.	" $\frac{3}{8}$ " .....	" 1.90

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

CLEVELAND CIRCUIT SWITCH—Single Pole.



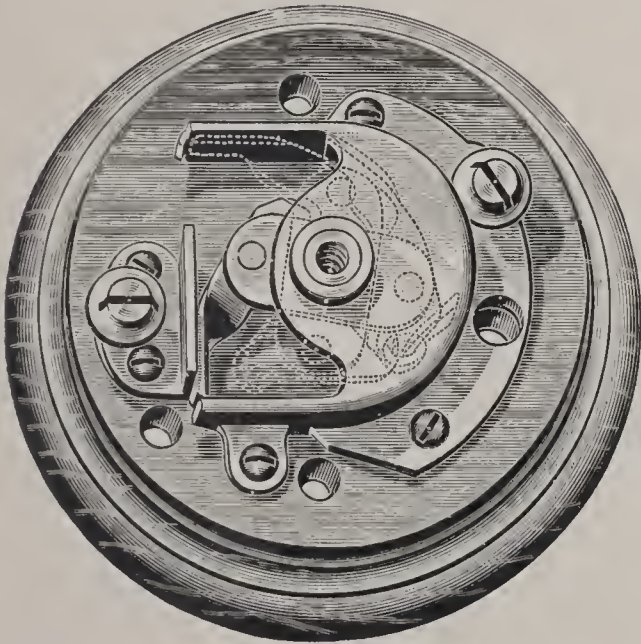
WOOD.

Trade Word.	Capacity.	Price.
Allure.	5 Ampères.....	each, \$1.50
Allurement.	10 “.....	“ 2.50
Alluring.	20 “.....	“ 3.50
Allusion.	30 “.....	“ 4.25
Almanac.	40 “.....	“ 5.00

PORCELAIN.

Trade Word.	Capacity.	Price.
Almond.	5 Ampères.....	each, \$1.50
Almoner.	10 “.....	“ 2.50
Almost.	20 “.....	“ 3.50
Alms.	30 “.....	“ 4.25
Aloft.	40 “.....	“ 5.00

THE PAISTE SWITCH—Single Pole.  
WOOD AND PORCELAIN BASE.

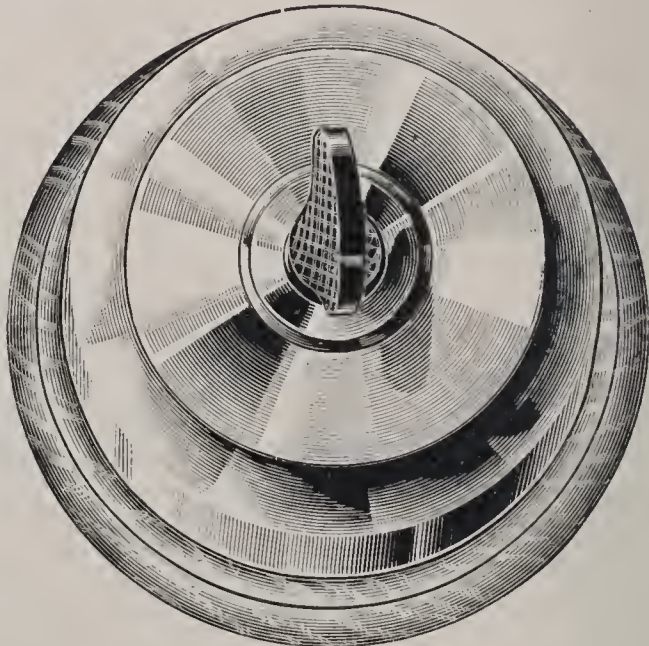


WOOD BASE.

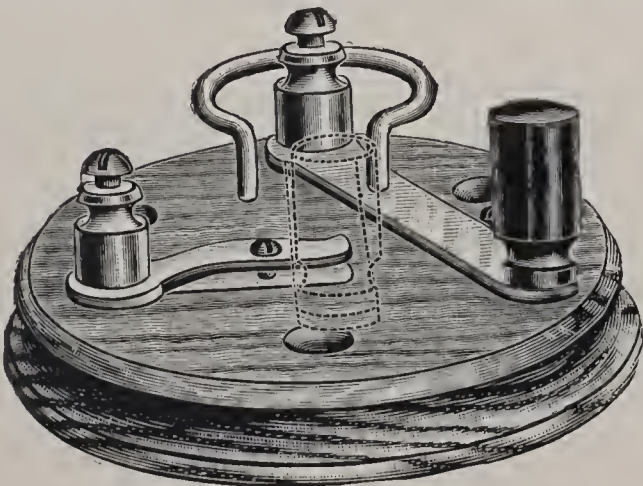
Trade Word.	Capacity.	Diam. of Base.	Price.
Alone.	5 Ampères, 1 1/2 in....	each	\$1.25
Along.	10 “ 3 “... “	“	1.50

PORCELAIN BASE.

Trade Word.	Capacity.	Price.
Aloof.	5 Ampères.....	each, \$1.25
Aloud.	10 “.....	“ 1.50



THE McLENNAN SWITCH—For Factory Work.



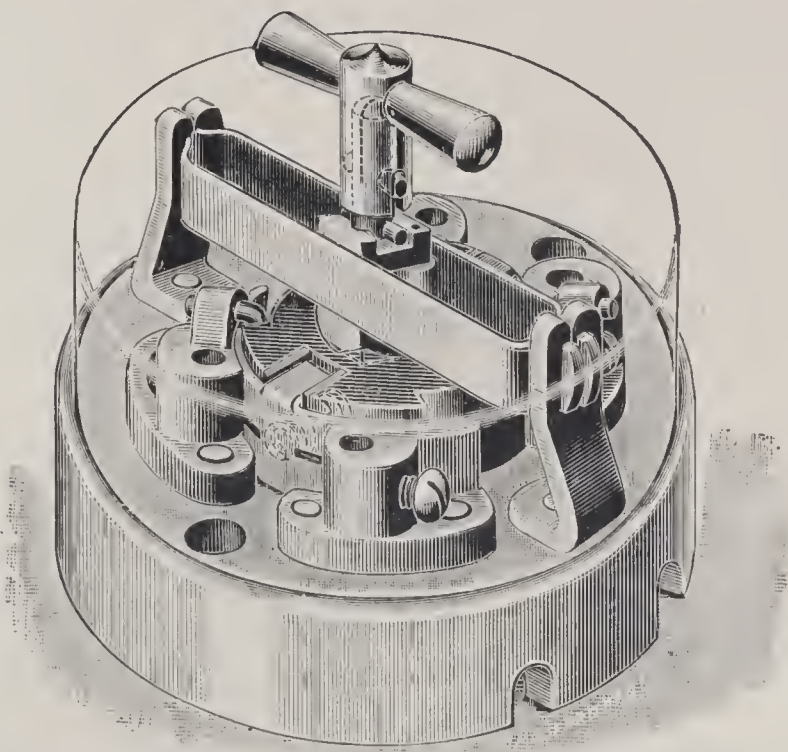
Trade Word.	Capacity.	Price.
Alpaca.	5 Ampères.....	each, \$1.00

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

THE PERKINS SWITCH.  
NICKEL-PLATED CAP.

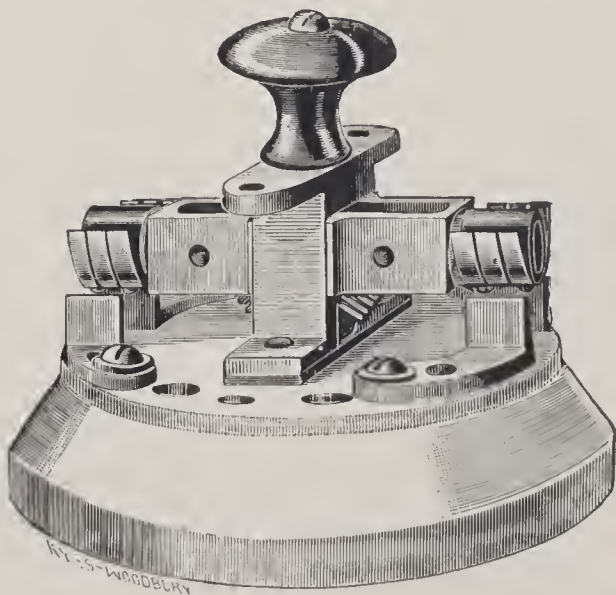


MADE WITH PORCELAIN BASES ONLY.

Rated with continuous current. With alternating current their capacity is increased 50 per cent. All parts made to gauge and interchangeable. Every switch guaranteed.

Trade Word.	Capacity.		Price.
Alphabet.	10	Ampères, single pole .....	\$1.50
Already.	15	“ double pole.....	3.00
Also.	25	“ “ .....	4.00
Altar.	40	“ “ .....	5.50
Alterable.	75	“ “ .....	6.00
Alteration.	100	“ “ .....	6.50

THE BRYANT DOUBLE POLE SWITCH.  
WOOD OR PORCELAIN BASE.



Finely Nickeled Cap and Enameled Knob.

WOOD BASE.			PORCELAIN BASE.		
Trade Word.	Capacity.	Price.	Trade Word.	Capacity.	Price.
Altered.	15	Ampères.....\$3.00	Altitude.	15	Ampères.....\$3.00
Allernate.	25	“ .....	Alum.	25	“ .....
Alternative.	40	“ .....	Always.	40	“ .....
Although.	40	“ .....	Amain.	50	“ .....

For Explanation of Trade Word see page 4.

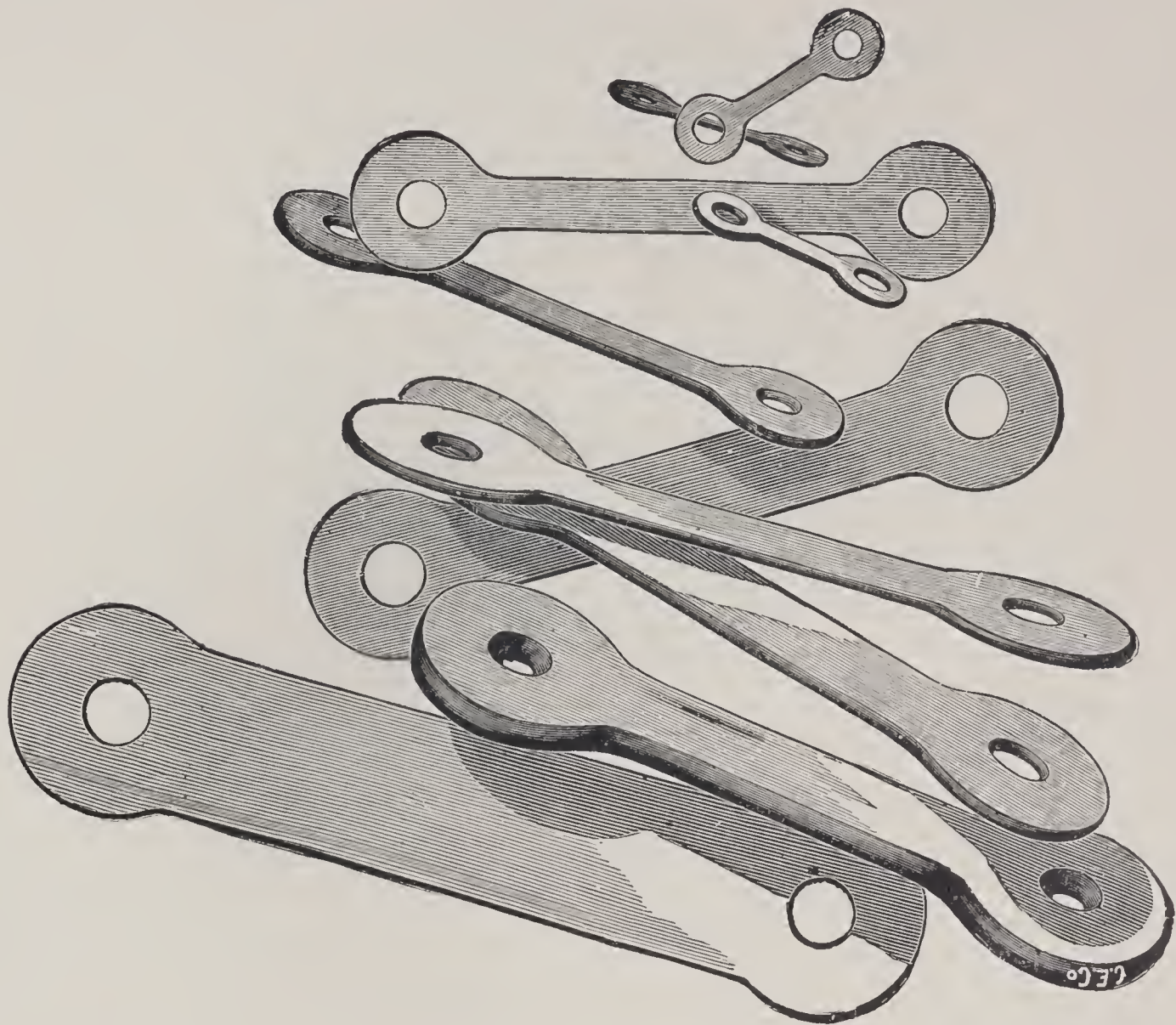






INCANDESCENT ELECTRIC LIGHT SUPPLIES.

FUSE LINKS.



Trade Word.	Capacity.	Price.
Amenable.	3 amperes. ....	each \$0.02
Amend.	5 " .....	" .02
Amendatory.	10 " .....	" .03
Amended.	15 " .....	" .04
Amendment.	20 " .....	" .05
Amenity.	25 " .....	" .06
Amerce.	30 " .....	" .07
Amercement.	35 " .....	" .08
American.	40 " .....	" .10
Amethyst.	50 " .....	" .11
Amiable.	75 " .....	" .20
Amicable.	100 " .....	" .20
Amical.	135 " .....	" .24

Fuses of other capacities can be obtained by combining two or more of above sizes.  
For Fuses with Metal Tips, see page 42.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

FUSE WIRE.



PRICES.

TRADE WORD.	Safe Carrying Capacity in Ampere .	Fusing Point Enclosed.	Fusing Point in Open Air.	Number of Lamps which can be operated.				Price per 100 feet,
				50 Volts. 3 Watts per C. P.	70 Volts, 4 Watts per C. P.	110 Volts, 3.5 Watts per C. P.	110 Volts 5 Watts per C. P.	
Amid.....	1/2	1.8	2.2	0	0	1	0	\$ 1.90
Amidships.....	1	2	2.5	1	1	2	1	1.90
Amiss.....	2	4	4.4	2	2	4	2	2.00
Amity.....	2 1/2	5	5.5	2	3	5	3	2.05
Ammunition.....	3	5.4	6.2	3	4	6	4	2.10
Amnesty.....	4	7	8	4	5	8	5	2.25
Among.....	5	8.3	10	5	6	10	6	2.60
Amorous.....	6	10	12	6	7	12	8	3.00
Amount.....	7	11	14	7	9	14	9	3.50
Amounting.....	8	12	15	8	10	16	10	4.00
Amour.....	9	13.5	17	9	11	18	12	4.50
Ample.....	10	15	18.5	10	12	20	13	5.00
Amplifier.....	12	18	21	12	15	24	16	6.00
AmPLY.....	14	21	24	14	17	28	19	7.00
Amputate.....	15	22.5	27	15	18	30	20	7.50
Amulet.....	16	24	29	16	20	32	22	8.00
Amuse.....	18	26.5	30	18	22	36	24	9.00
Amusement.....	20	29	32	20	25	40	27	10.00
Amusing.....	25	35	40	25	31	50	33	12.00
Anagram.....	30	42	48	30	37	60	40	14.00
Analogy.....	35	49	56	35	43	70	46	16.00
Analyze.....	40	56	64	40	49	80	53	18.00
Anarchist.....	50	68	76	50	62	100	67	19.00
Anarchy.....	60	80	90	60	74	120	80	20.00
Anatomist.....	70	88	105	70	86	140	93	21.00
Anatomy.....	75	100	112	75	103	150	100	21.50
Ancestor.....	100	130	140	100	122	200	133	24.50
Ancestral.....	125	155	165	125	155	250	165	28.00
Ancestry.....	150	185	195	150	185	300	200	32.00
Anchor.....	175	218	230	175	215	350	230	36.00
Anchorage.....	200	245	260	200	250	400	265	40.00

The above prices are subject to discount to the trade.

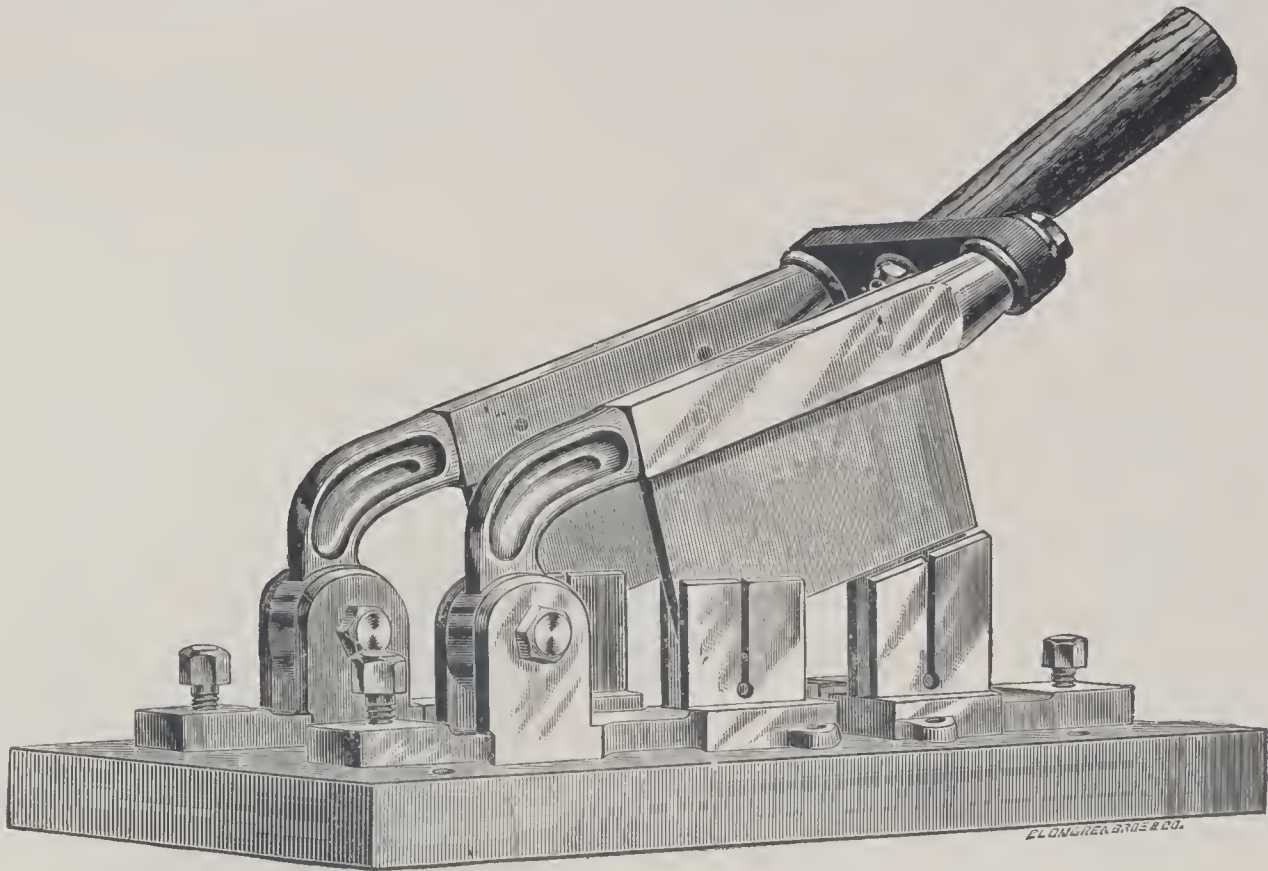
The conditions and surroundings of a fuse wire vary its melting point greatly. If enclosed, it melts much sooner than if exposed. In the table given above will be found the fusing current under both conditions.

For Explanation of Trade Word see Page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

THE ANDREWS DOUBLE POLE CENTRAL STATION SWITCH.

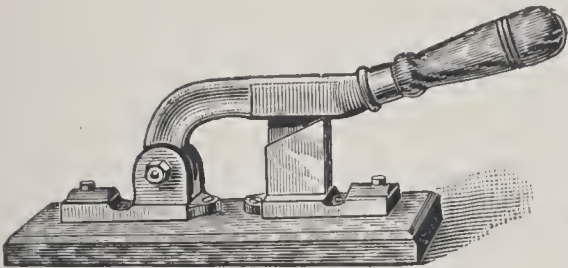


From 100 to 1000 Ampères, Mahogany Base.

Dipped and Lacquered.				Polished and Lacquered.			
Trade Word.	Capacity.		Price.	Trade Word.	Capacity.		Price.
Anchovy.	100	Ampères	\$20.00	Anger.	100	Ampères	\$26.00
Ancient.	250	"	30.00	Angle.	250	"	36.00
Anecdote.	400	"	42.00	Angling.	400	"	48.00
Anent	600	"	48.00	Angry.	600	"	60.00
Angel.	1000	"	64.00	Angular.	1000	"	80.00

On Slate Bases, special prices.

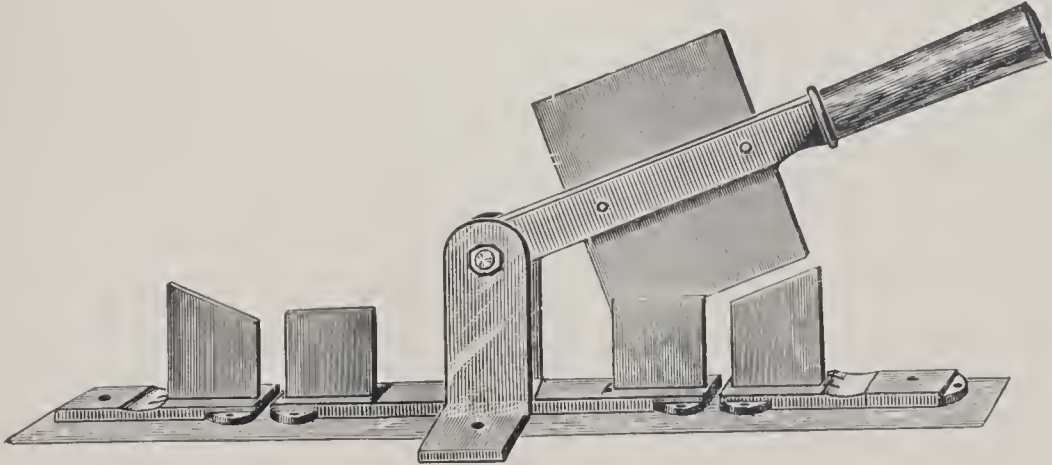
THE LANG SWITCH.



The cut at the left represents a new, novel and easily manipulated Electric Switch. In this style we use one pair of clips, and the tongue is rigid in the holder, making the holder part of the current of great conductivity. The make and break actions are **Quick, Clear** and **Perfect**, and the contact **Instantaneous**.

Cherry Base, Dipped and Lacquered.				Cherry Base, Polished and Lacquered.			
Trade Word.	Capacity.		Price.	Trade Word.	Capacity.		Price.
Animal.	25	Ampères	\$6.00	Animosity.	25	Ampères	\$ 7.50
Animate.	100	"	8.00	Ankle.	100	"	10.00

THROW-OVER SWITCH.



The cut shows an alternating current throw-over Switch, made, as the cut shows, with a single or double pole, of same material as the Andrews Switch. Clips and Tongue of pure copper. Clips all inserted in the body of the metal.

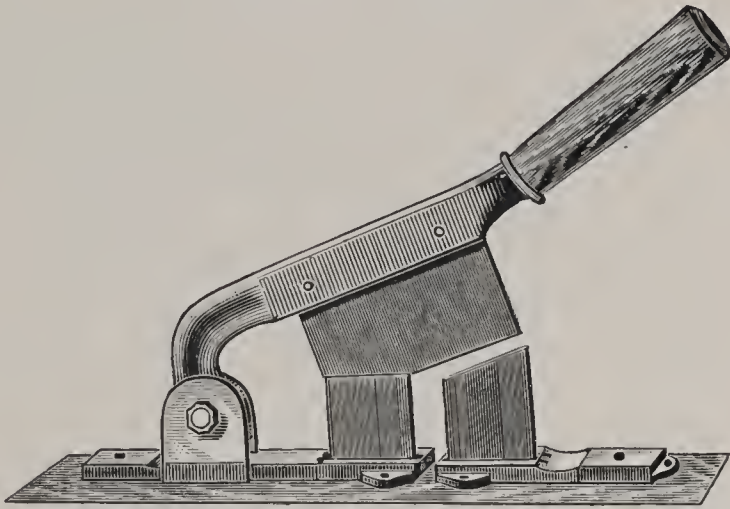
Trade Word.				Price.
Annal.	150	Ampères, Single Style, Dipped		\$18.00
Annex.	150	" " " Polished		22.00
Annotate.	300	" Double " Dipped		30.00
Announce.	300	" " " Polished		35.00

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

THE LANG MAIN LINE SWITCH FOR CENTRAL STATIONS.  
SINGLE POLE.



Are warranted not to heat, unless very heavily overloaded.

They admit of very quick make and break action. The blade or tongue does not drag in closing or opening. The tongue or blade is hung loose in holder, insuring a perfectly parallel fit in both sets of Clips.

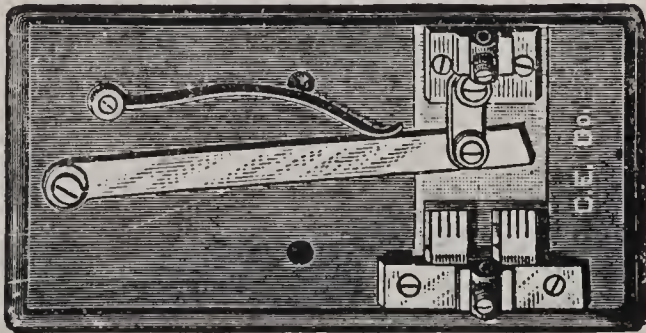
Contact is instantly made and broken across the entire face or width of the Copper Clips, instead of being entered in or gradually drawn off to one corner, as is the case in most of the Switches in use. By these means ease of manipulation is attained and sparking reduced to a minimum. The Clips and tongues in these switches are made of the purest copper obtainable, and the body parts are cast from a composition metal of high conductivity.

To all who use these switches satisfaction is guaranteed.

Keep inside of Clips clean, free from dust, and avoid heating in heavy carrying currents.

MAHOCANY BASE, BRASS DIPPED AND LACQUERED.				MAHOCANY BASE, BRASS POLISHED AND LACQUERED.			
Trade Word.	Capacity.		Price.	Trade Word.	Capacity.		Price.
Annoy.	100 amperes	.....	\$10.00	Annular.	100 amperes	.....	\$13.00
Annoyance.	250	" .....	15.00	Annulment.	250	" .....	18.00
Annoying.	400	" .....	21.00	Annunciate.	400	" .....	24.00
Annual.	600	" .....	24.00	Anoint.	600	" .....	30.00
Annually.	1,000	" .....	32.00	Anointed.	1,000	" .....	40.00

AUTOMATIC CUT-OUT AND GROUND SWITCH.



Upon Fusible Wire or Strip being destroyed, the lever is forced by a spring into another connection, which may either be attached to a ground, or, if it is desired to keep circuit closed, to the other exit wire.

Trade Word.	Capacity.	Price.	Trade Word.	Capacity.	Price.
Anomaly.	$\frac{1}{2}$ ampere	\$1.50	Antecede.	10 ampere	\$2.50
Anon.	1	1.50	Antecedent.	20	3.50
Anonymous.	3	1.50	Antedate.	30	4.25
Antagonist.	5	2.00	Antelope.	40	5.00

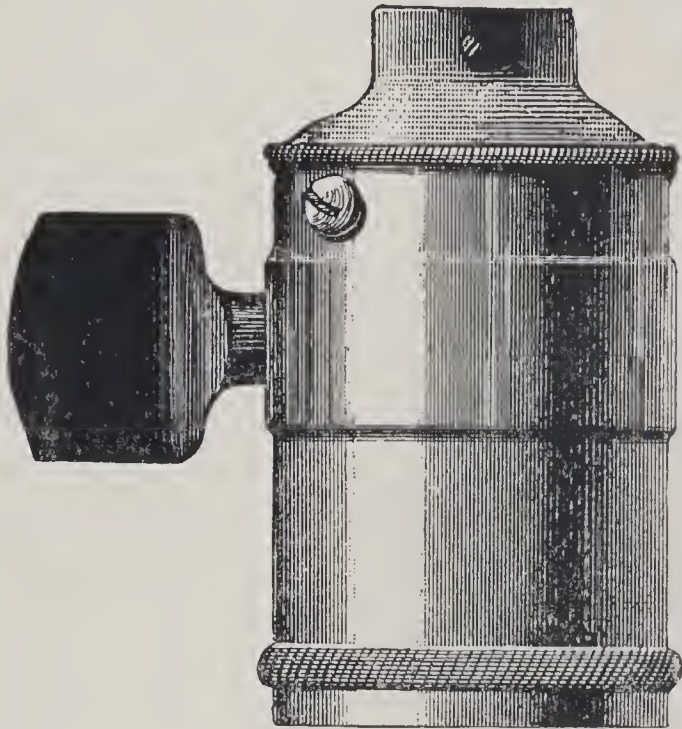
For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

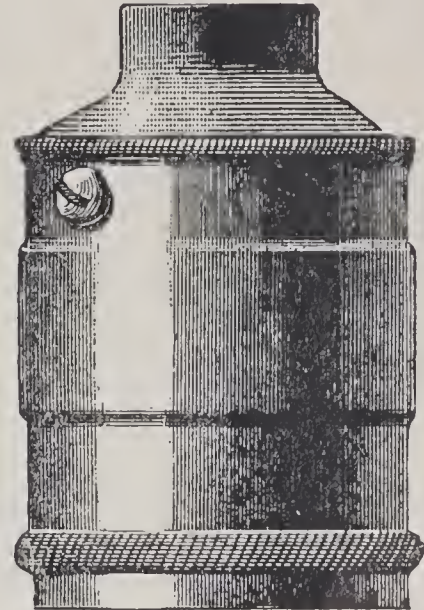
## SOCKETS.

### THOMSON-HOUSTON KEY SOCKET.



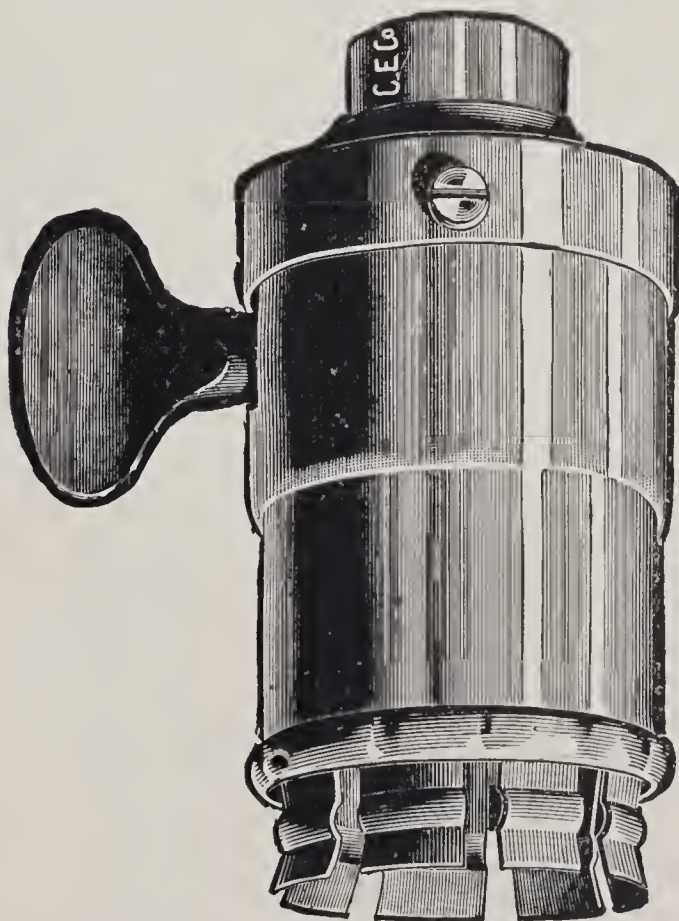
Trade Word.	Price.
Anterior . . . . .	each, \$1.20

### THOMSON-HOUSTON KEYLESS SOCKET.



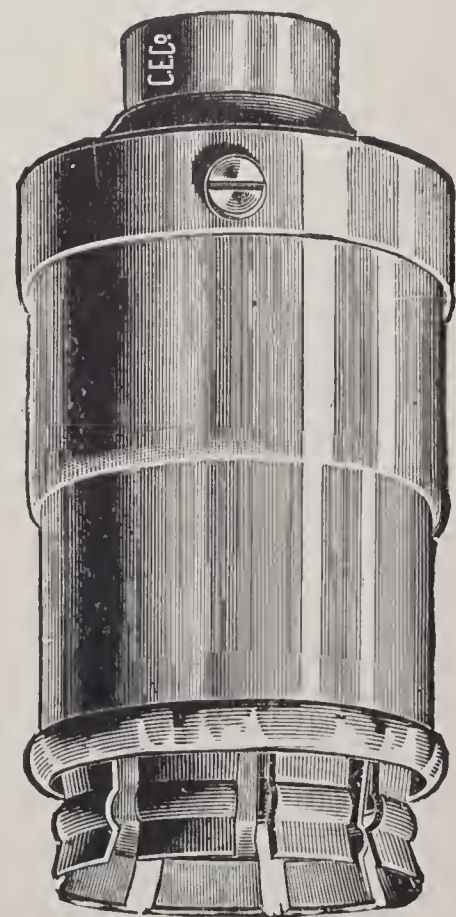
Trade Word.	Price.
Anteroom . . . . .	each, \$1.00

### SAWYER-MAN KEY SOCKET.



Trade Word.	Price.
Anthem . . . . .	each, \$1.20

### SAWYER-MAN KEYLESS SOCKET.



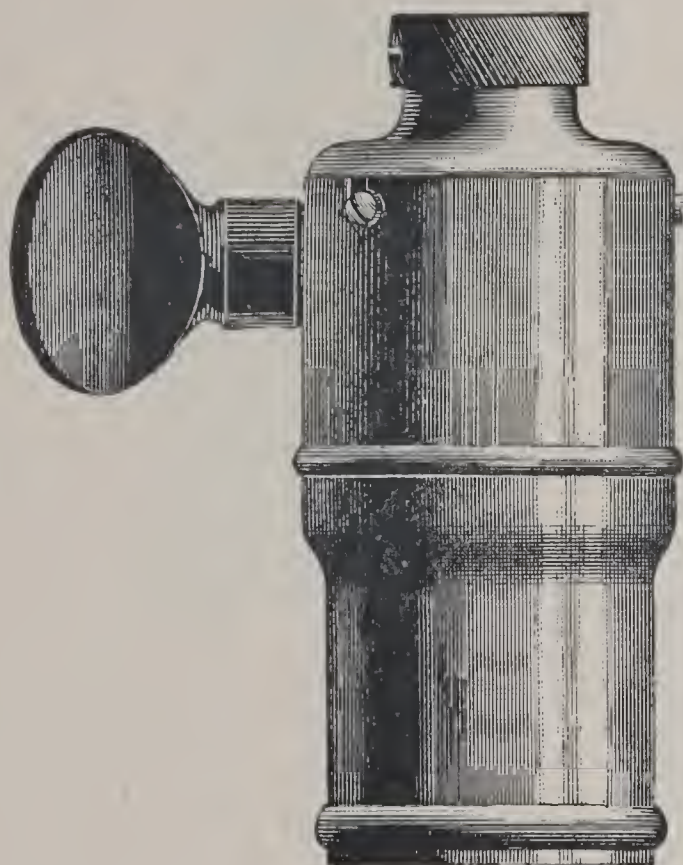
Trade Word.	Price.
Antic. . . . .	each, \$1.00

For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

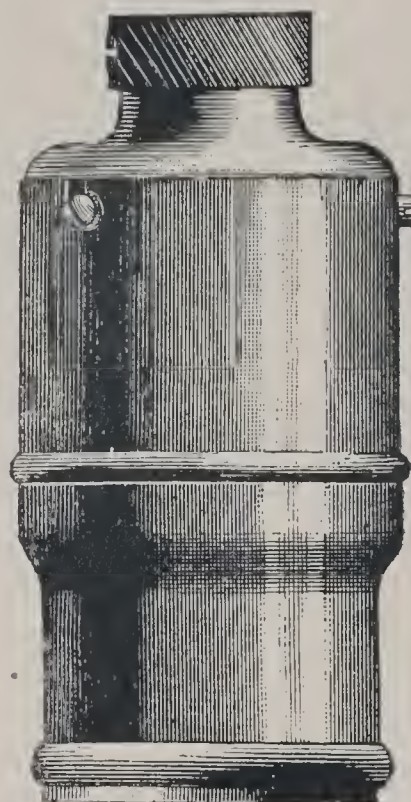
## U. S. KEY SOCKET.



Trade Word.  
Anticipate.....each, \$1.20

Price.

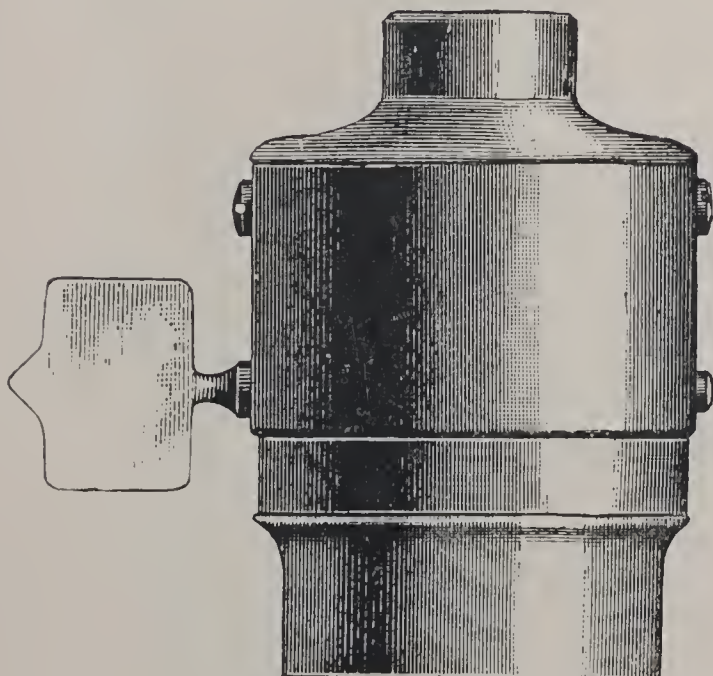
## U. S. KEYLESS SOCKET.



Trade Word.  
Antidote.....each, \$1.00

Price.

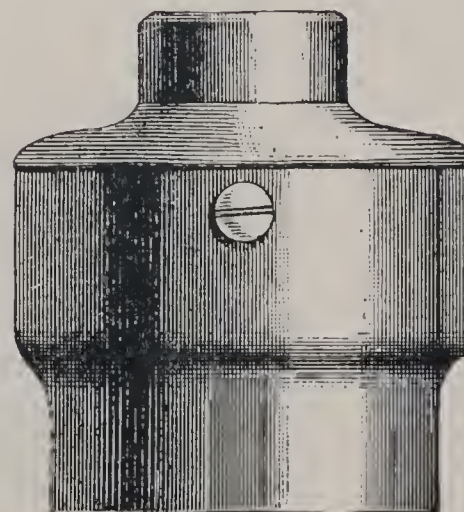
## PERKINS' KEY SOCKET.



Trade Word.  
Antipathy.....each, \$1.20

Price.

## PERKINS' KEYLESS SOCKET.



Trade Word.  
Antiquary.....each, \$1.00

Price.

For Explanation of Trade Word see page 4.

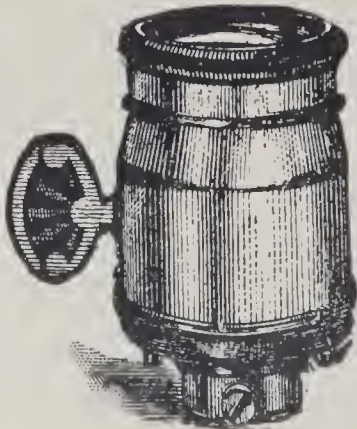


INCANDESCENT ELECTRIC LIGHT SUPPLIES.

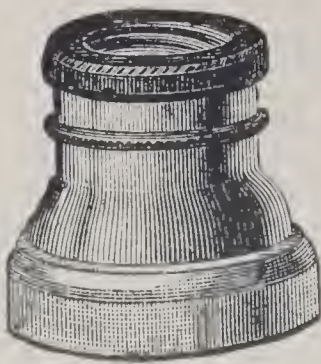
EDISON'S PATENTED STANDARD SOCKETS AND RECEPTACLES.



No. 1.



No. 2.



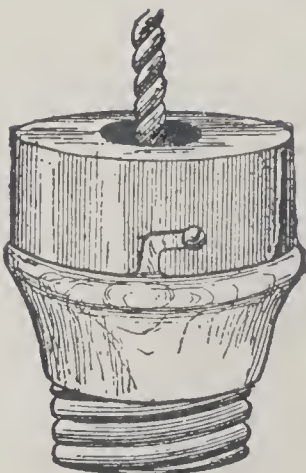
No. 3.



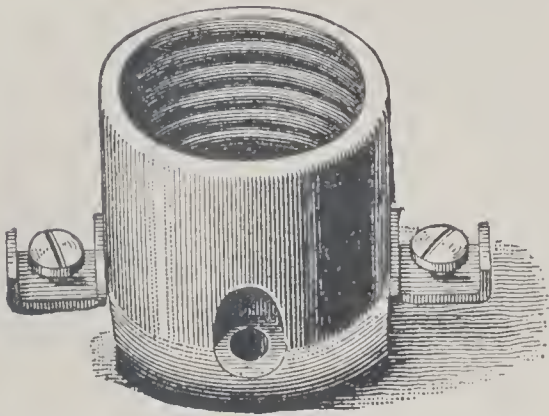
No. 6.



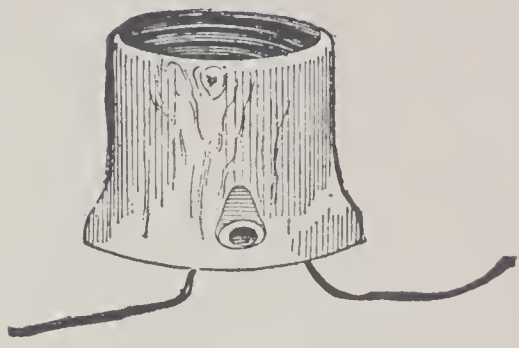
No. 7.



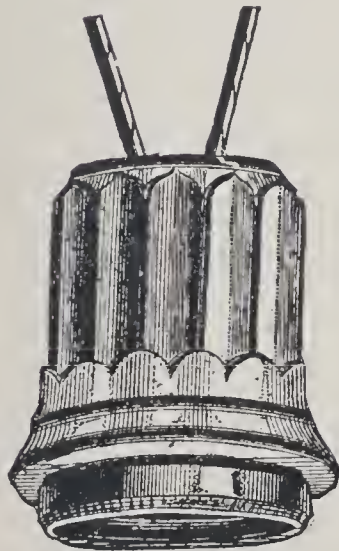
No. 234.



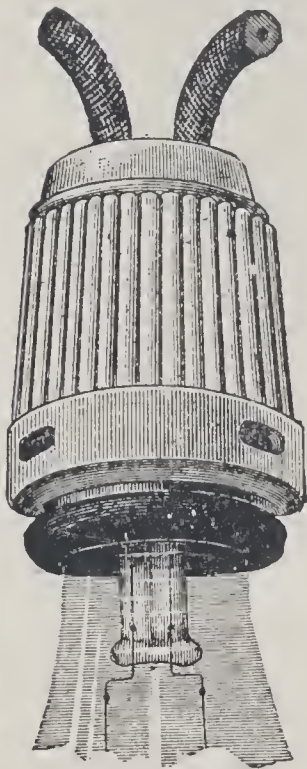
No. 369.



No. 233.



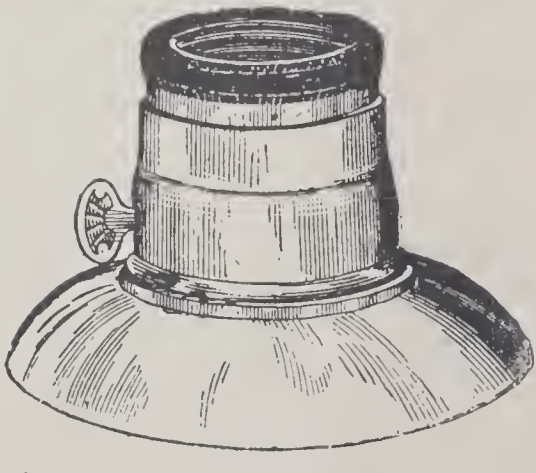
No. 367.



No. 667.



No. 3 1/2.



No. 8.

Trade Word.								Price.
Antique.	No. 1	Standard Keyless Socket,	1/8	inch thread,	plain	.....	each,	\$ .54
Antiquity.	" 1	" " " "	1/8	" "	polished	.....	"	.60
Antler.	" 1	" " " "	1/4	" "	plain	.....	"	.54
Anvil.	" 1	" " " "	1/4	" "	polished	.....	"	.60
Anxiety.	" 6	" " " "	3/8	" "	plain	.....	"	.50
Anxious.	" 6	" " " "	3/8	" "	polished	.....	"	.56
Any.	" 2	Key " " "	1/8	" "	plain	.....	"	1.14
Apace.	" 2	" " " "	1/8	" "	polished	.....	"	1.20
Apart.	" 2	" " " "	1/4	" "	plain	.....	"	1.14
Apartment.	" 2	" " " "	1/4	" "	polished	.....	"	1.20
Apathetic.	" 2	" " " "	3/8	" "	plain	.....	"	1.10
Apathy.	" 2	" " " "	3/8	" "	polished	.....	"	1.16
Apex.	" 233	Wooden "Testing" Sockets (with Wires only for connecting).....					"	.31
Apish.	" 234	Wooden Suspending Sockets for Flexible Pendants (with Screws for connecting)					"	.44
Apologist.	" 3	Standard Keyless Receptacle, on Wood or Porcelain Base, Polished Brass					"	.55
Apologize.	" 3 1/2	Fancy Keyless Receptacle. Polished Brass,.....					"	.75
Apology.	" 7	Standard Key Receptacle, on Wood or Porcelain Base. Polished Brass.....					"	1.15
Apoplexy.	" 667	Improved Porcelain Waterproof Socket, with Soft Rubber Ring.....					"	.75
Apostate.	" 668	Patent Shade Holder, 3 1/4 inch, for the above.....					"	.33
Apostle.	" 8	Fancy Key Receptacle.....					"	1.35
Apothecary.	" 367	Porcelain Waterproof Socket.....					"	.40
Apothegm.	" 369	Wood "Testing Socket," with outside screw connections; especially adapted for foot-lights, borders, etc.....					"	.40

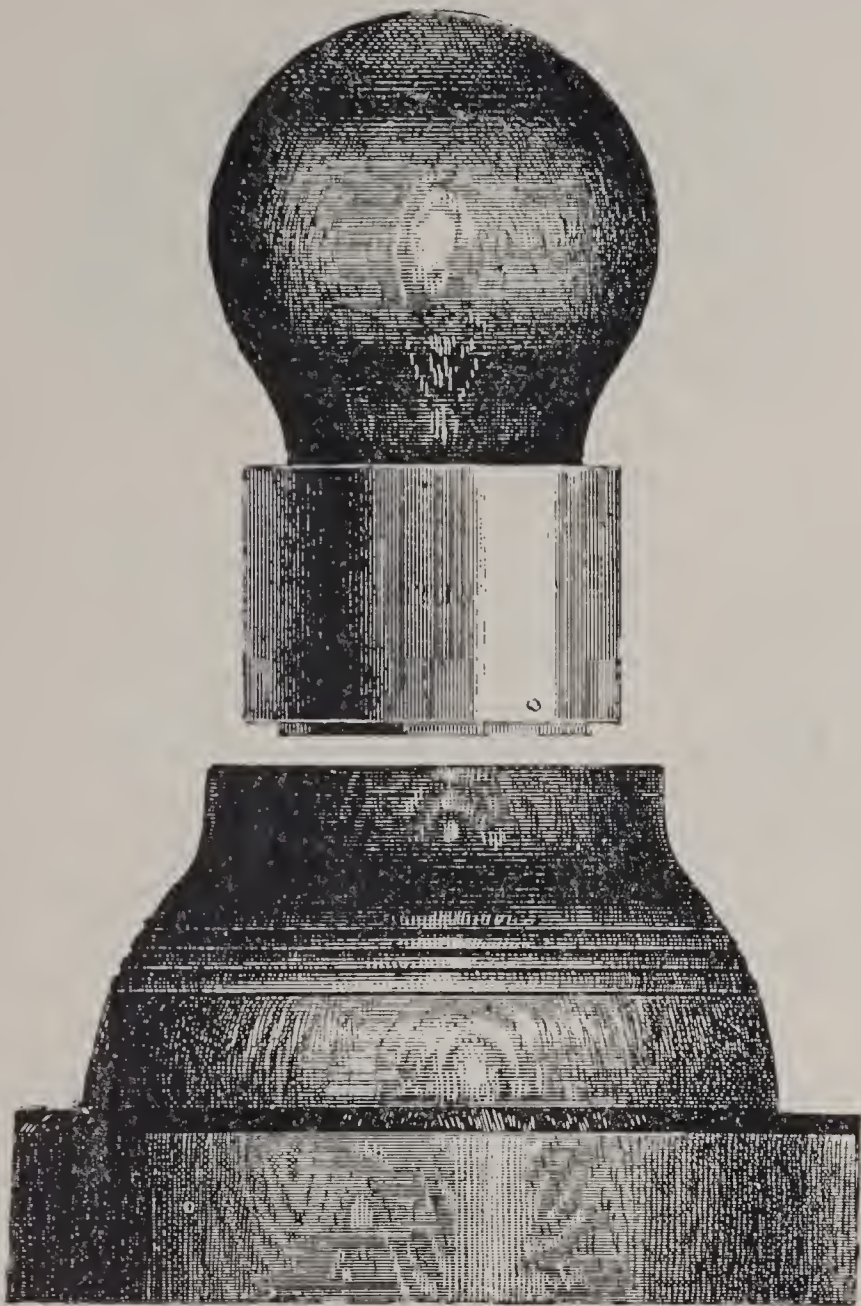
For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

WALL RECEPTACLE AND PLUG.

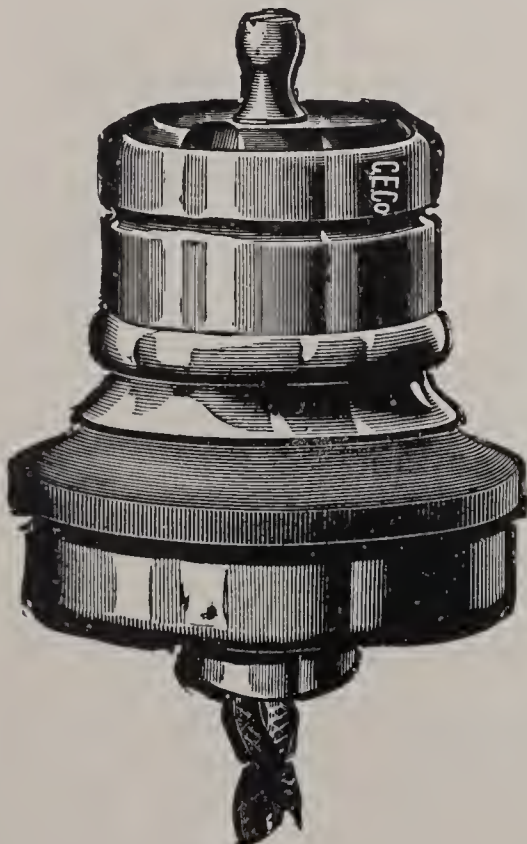
FOR THOMSON-HOUSTON LAMPS.



Trade Word.		Price.
Appealing.	Receptacle .....	each, \$1.00
Appeals.	Plug.....	“ .60

ATTACHMENT PLUG.

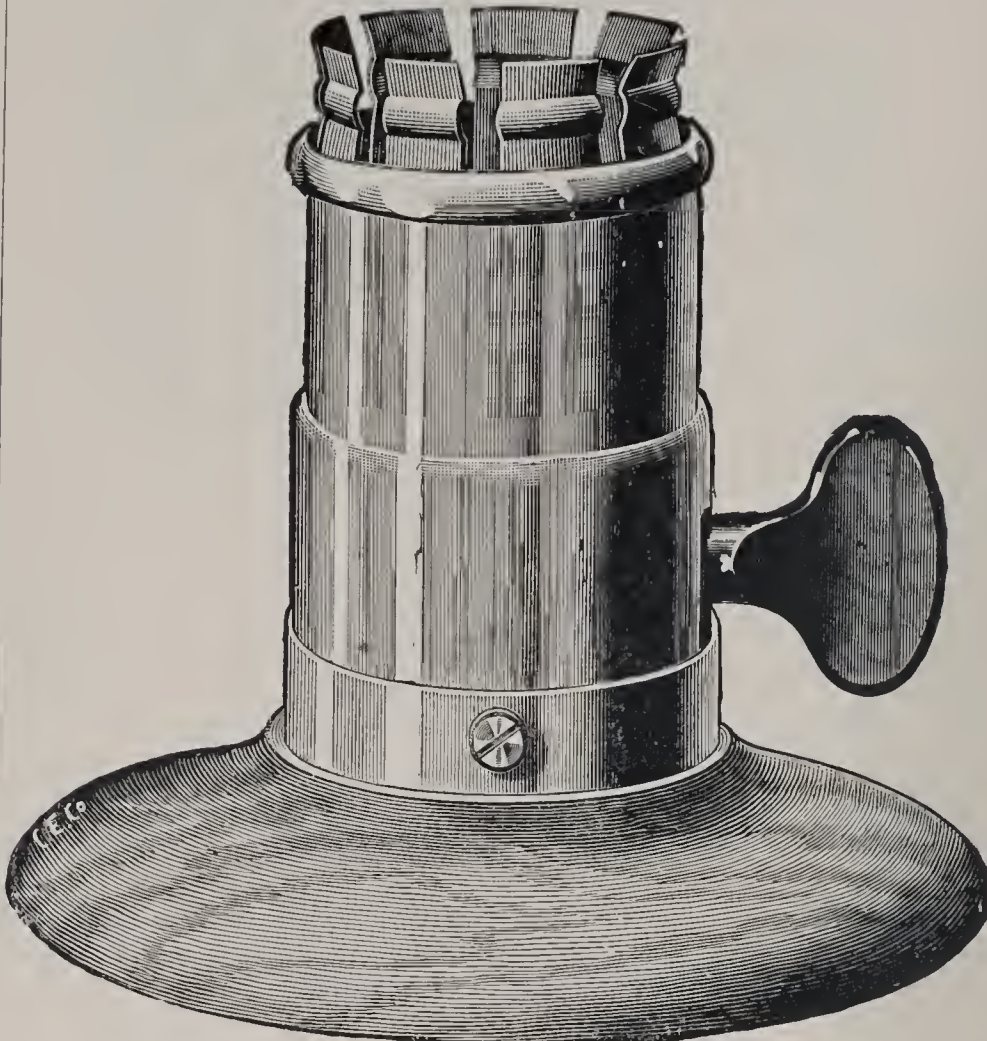
FOR SAWYER-MAN SOCKET.



Trade Word.		Price.
Appealer.....	each, \$1.00	

KEY AND KEYLESS WALL SOCKETS.

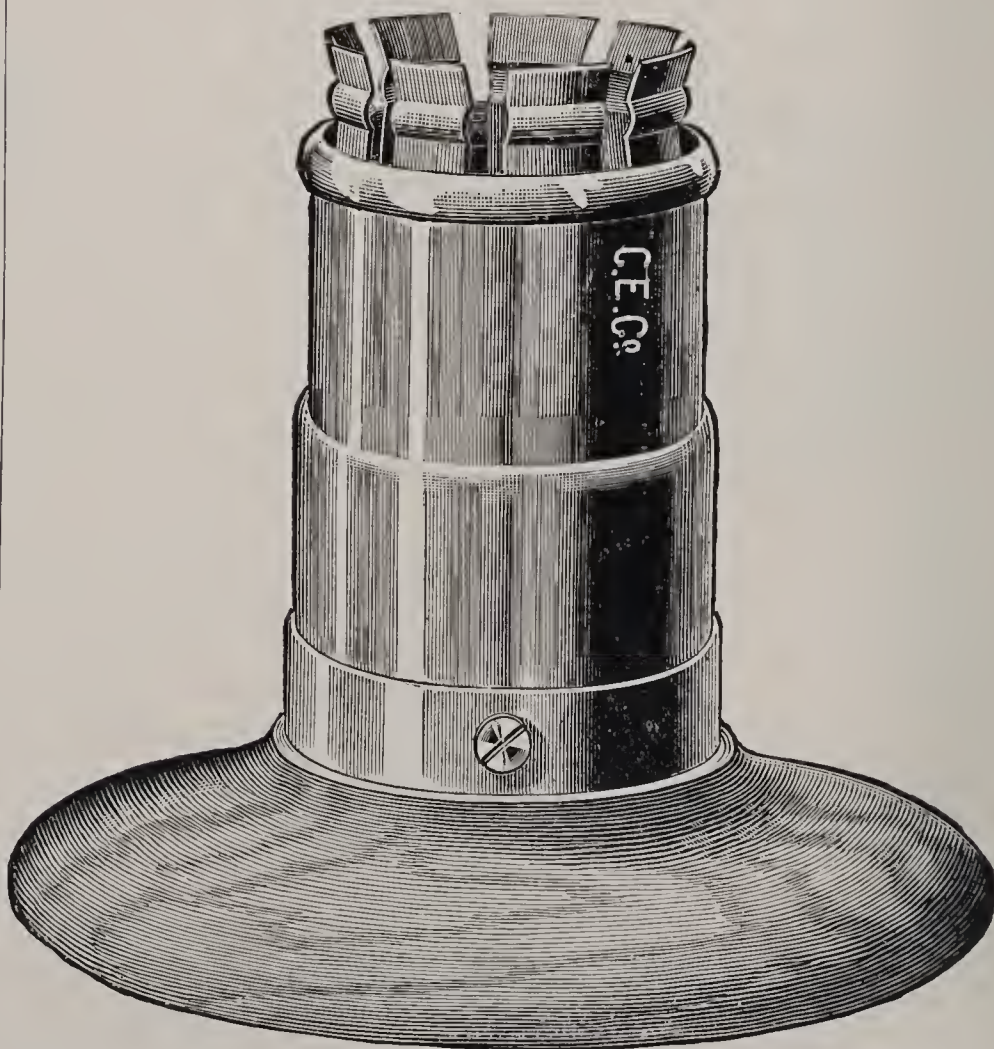
FOR ANY SYSTEM.



The cut shows a Key Wall Socket for a lamp with Sawyer-Man base.

Trade Word.	System.	Price.
Appal.	Sawyer-Man.....	each, \$1.50
Appalling.	Thomson-Houston .....	“ 1.50
Apparatus.	United States.....	“ 2.00
Apparel.	Perkins.....	“ 2.00

For Edison Key Wall Socket see page 59.



The cut shows a Keyless Wall Socket for a lamp with Sawyer-Man base.

Trade Word.	System.	Price.
Apparent.	Sawyer-Man.....	each \$1.25
Apparently.	Thomson-Houston .....	“ 1.25
Apparition.	United States .....	“ 1.60
Appeal.	Perkins.....	“ 1.80

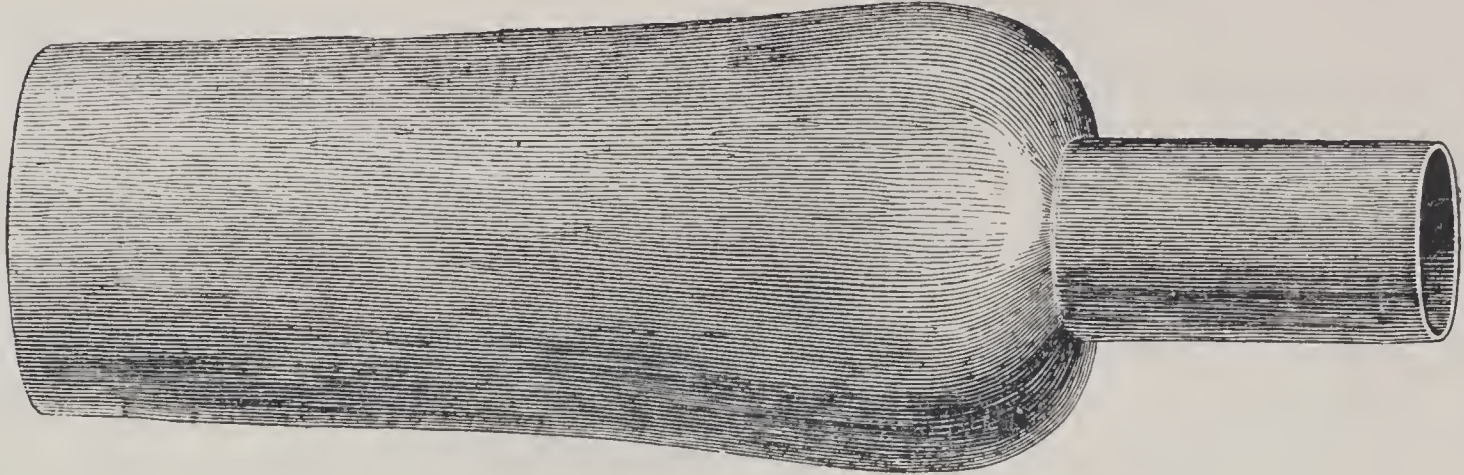
For Edison Keyless Wall Sockets see page 59.

For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## RUBBER COVER FOR KEYLESS SOCKETS.



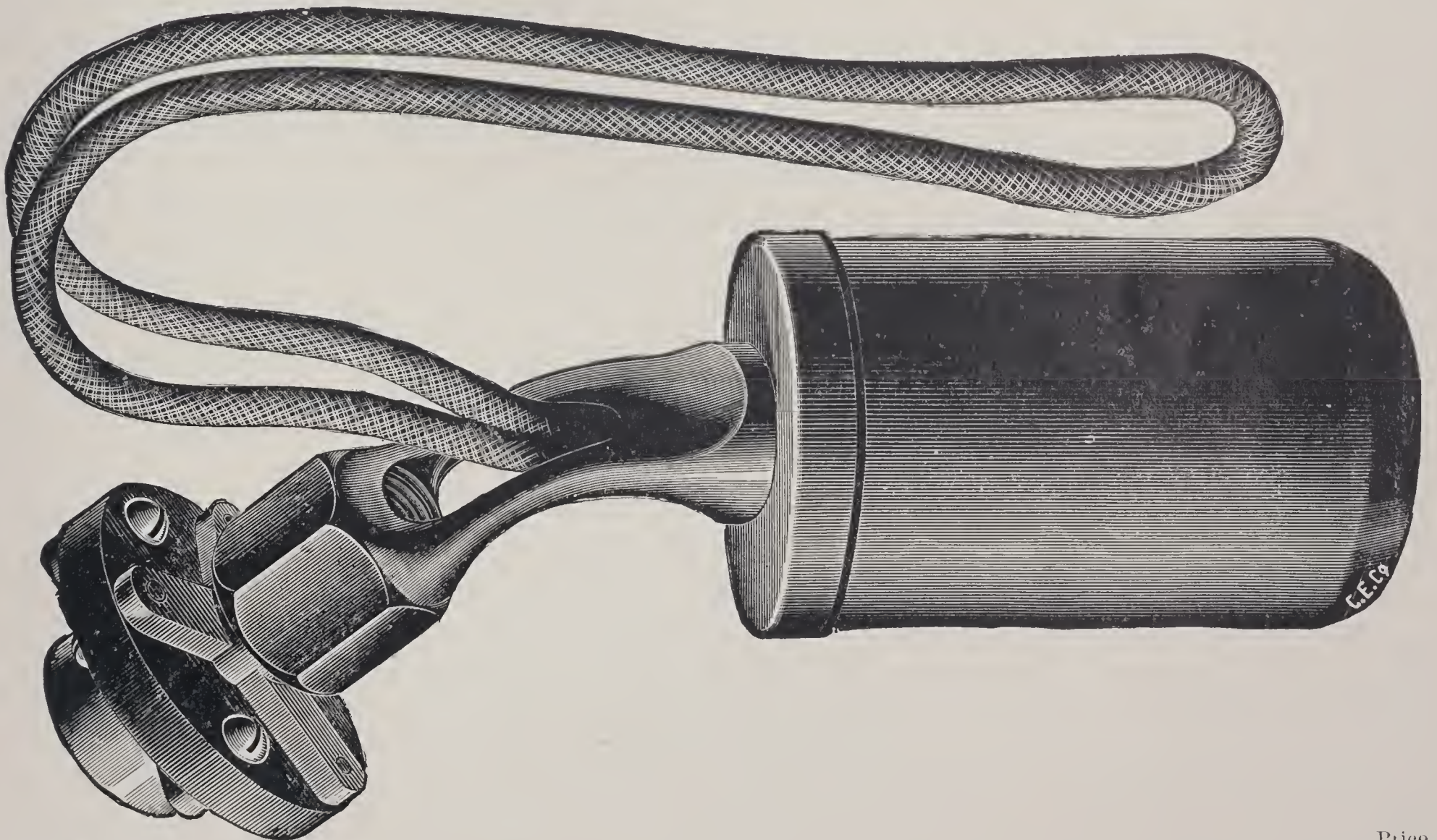
Made of pure rubber, and designed to protect Keyless Sockets from moisture when they are installed in exposed places.

Trade Word.

Appear. ....per doz., \$2.50

Price.

## WATER-PROOF SOCKET.—With Insulating Joint.



Trade Word.

Appearance. As shown in cut .....each, \$3.00

Appearing. Same (without Insulating Joint) ..... “ 2.00

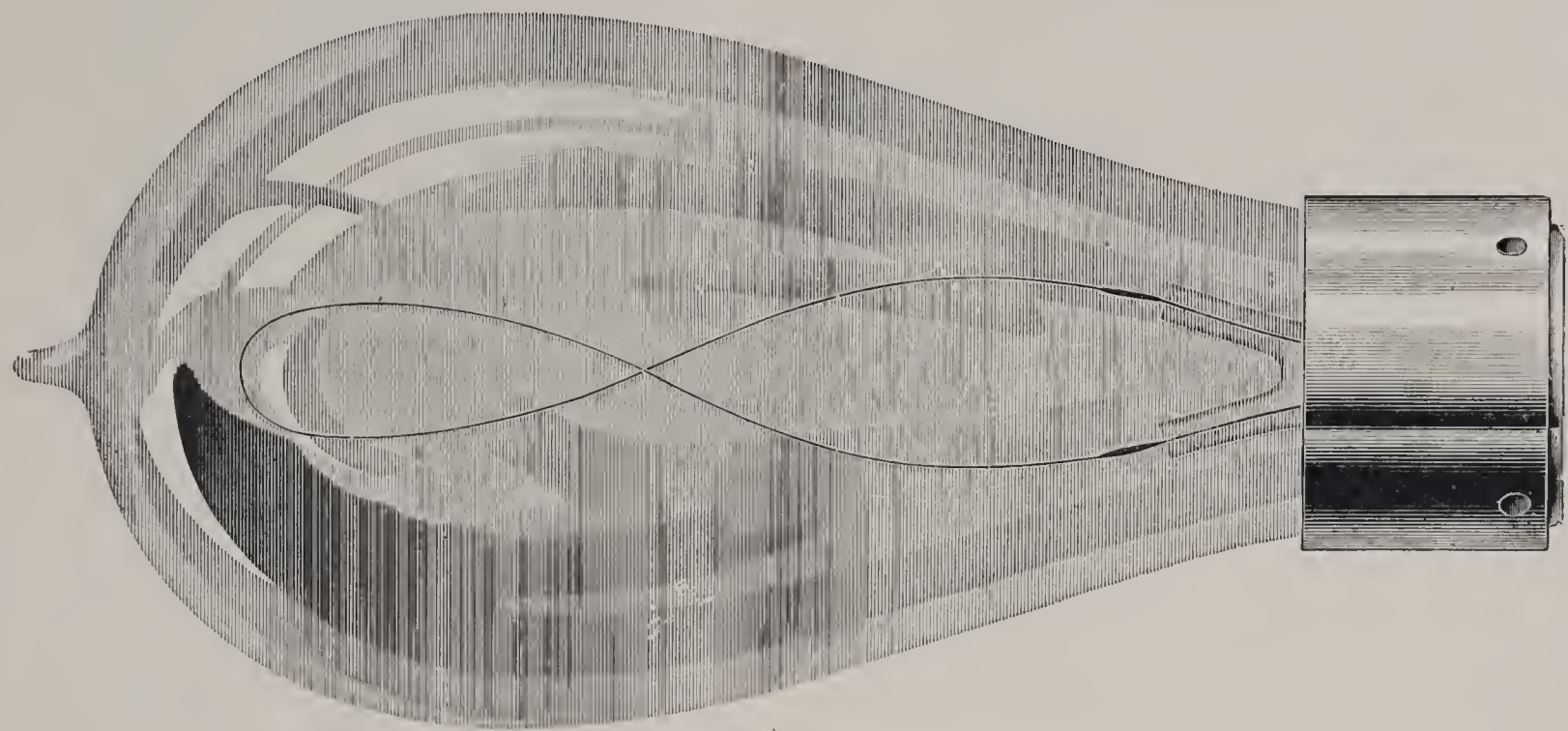
Water-proof Sockets are adapted for use in mines, tunnels and places where moist atmosphere prevails. This Socket is successfully used in the Hoosac Tunnel.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT LAMPS.



To fit Thomson-Houston Sockets.

16 CANDLE POWER.			
Trade Word.	Voltage.		Price.
Appendix.	50 Volts.	.....each,	\$0.70
Appertain.	100 “	.....“	.75
Appertaining.	110 “	.....“	.75
Appetite.	115 “	.....“	.75
Applaud.	120 “	.....“	.75

25 CANDLE POWER.			
Trade Word.	Voltage.		Price.
Applause.	50 Volts.	.....each,	\$0.80
Apple.	100 “	.....“	.85
Appliance.	110 “	.....“	.85
Applicant.	115 “	.....“	.85
Application.	120 “	.....“	.85

32 CANDLE POWER.			
Trade Word.	Voltage.		Price.
Applies.	50 Volts.	.....each,	\$0.90
Apply.	100 “	.....“	.95
Applying.	110 “	.....“	.95
Appoint.	115 “	.....“	.95
Appointing.	120 “	.....“	.95

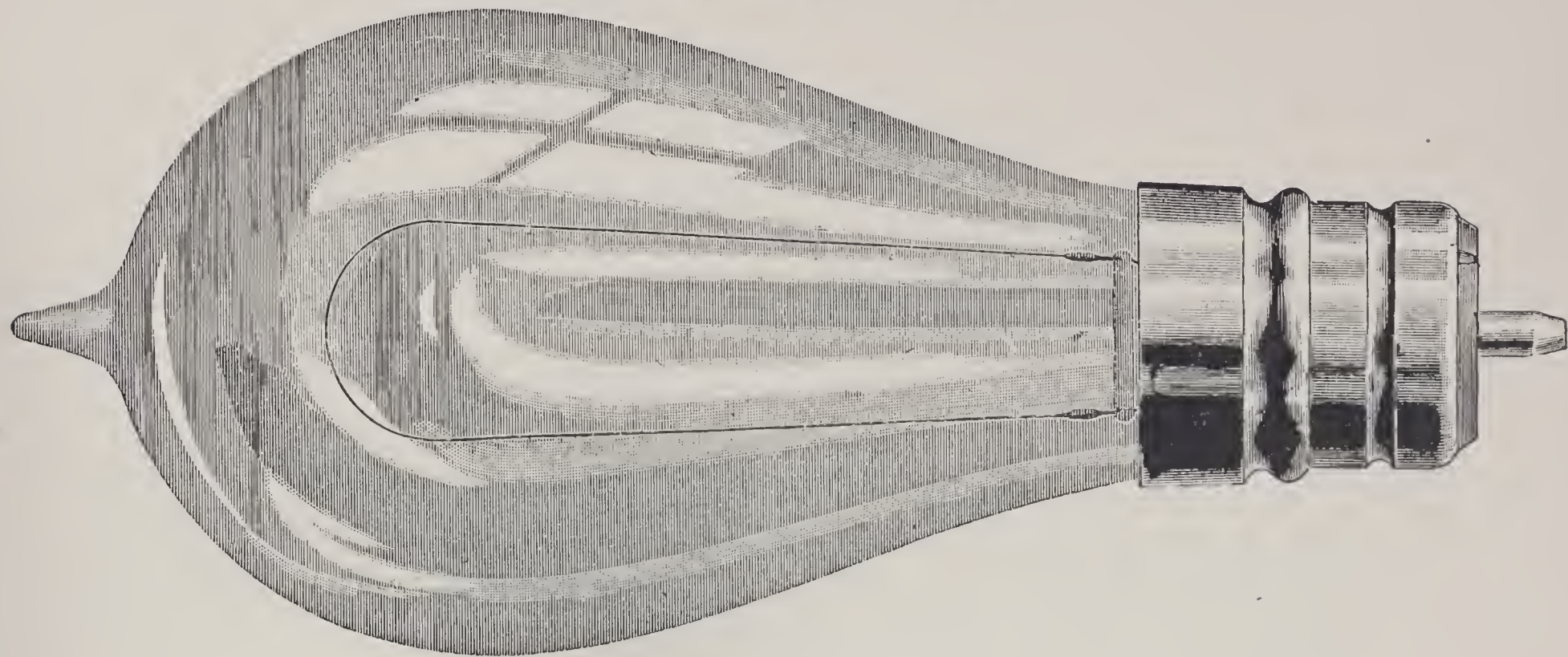
50 CANDLE POWER.			
Trade Word.	Voltage.		Price.
Apportion.	50 Volts.	.....each,	\$1.50
Apposite.	100 “	.....“	1.50
Appraisal.	110 “	.....“	1.50
Appraise.	115 “	.....“	1.50
Appraisement.	120 “	.....“	1.50

Other Voltage and Candle Powers to Order.  
For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT LAMPS.



To fit Sawyer-Mann Sockets.

16 CANDLE POWER.

Trade Word.	Voltage.		Price.
Appreciable.	50 volts.	.....each,	\$0.70
Appreciate.	100 “	.....“	.75
Appreciation.	110 “	.....“	.74
Apprehend.	115 “	.....“	.75
Apprehending.	120 “	.....“	.75

25 CANDLE POWER.

Trade Word.	Voltage.		Price.
Apprehension.	50 volts.	.....each,	\$0.80
Apprentice.	100 “	.....“	.85
Apprise.	110 “	.....“	.85
Approach.	115 “	.....“	.85
Approached.	120 “	.....“	.85

32 CANDLE POWER.

Trade Word.	Voltage.		Price.
Approbate.	50 volts.	.....each,	\$0.90
Approbation.	100 “	.....“	.95
Appropriate.	110 “	.....“	.95
Appropriation.	115 “	.....“	.95
Appropriator.	120 “	.....“	.95

50 CANDLE POWER.

Trade Word	Voltage.		Price.
Approvable.	50 volts.	.....each,	\$1.50
Approval	100 “	.....“	1.50
Approve.	110 “	.....“	1.50
Approvement.	115 “	.....“	1.50
Approving.	120 “	.....“	1.50

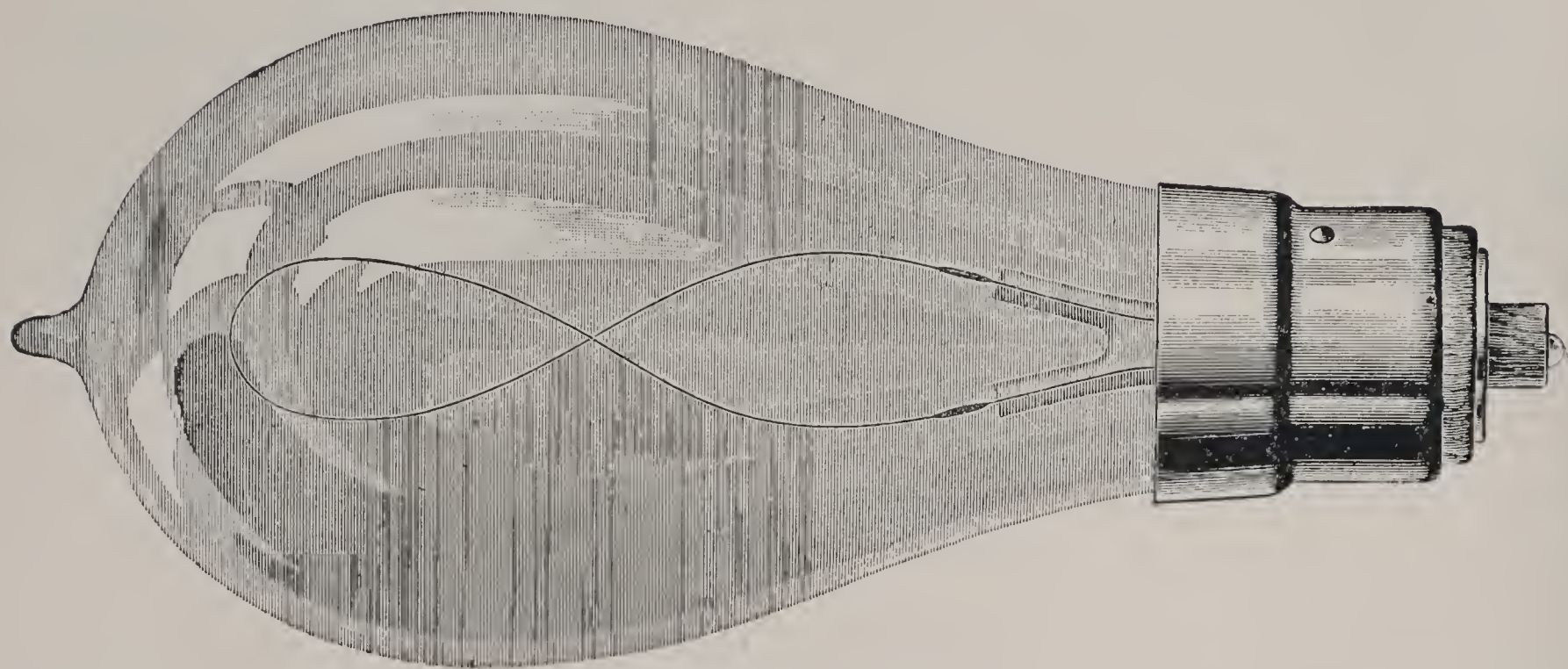
Other Voltages and Candle Powers to order.

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT LAMPS.



To Fit United States Sockets.

16 CANDLE POWER.				Price.
Trade Word.	Voltage.			
Approving.	50	Volts	.....each,	\$0.70
Approximate.	100	"	....."	.75
Apricot.	110	"	....."	.75
April.	115	"	....."	.75
Apron.	120	"	....."	.75

25 CANDLE POWER.				Price.
Trade Word.	Voltage.			
Apter.	50	Volts	.....each,	\$0.80
Aptitude.	100	"	....."	.85
Aptly.	110	"	....."	.85
Aptness.	115	"	....."	.85
Aquatic.	120	"	....."	.85

32 CANDLE POWER.				Price.
Trade Word.	Voltage.			
Aqueduct.	50	Volts	.....each,	\$0.90
Aquiline.	100	"	....."	.95
Arab.	110	"	....."	.95
Arable.	115	"	....."	.95
Arbiter.	120	"	....."	.95

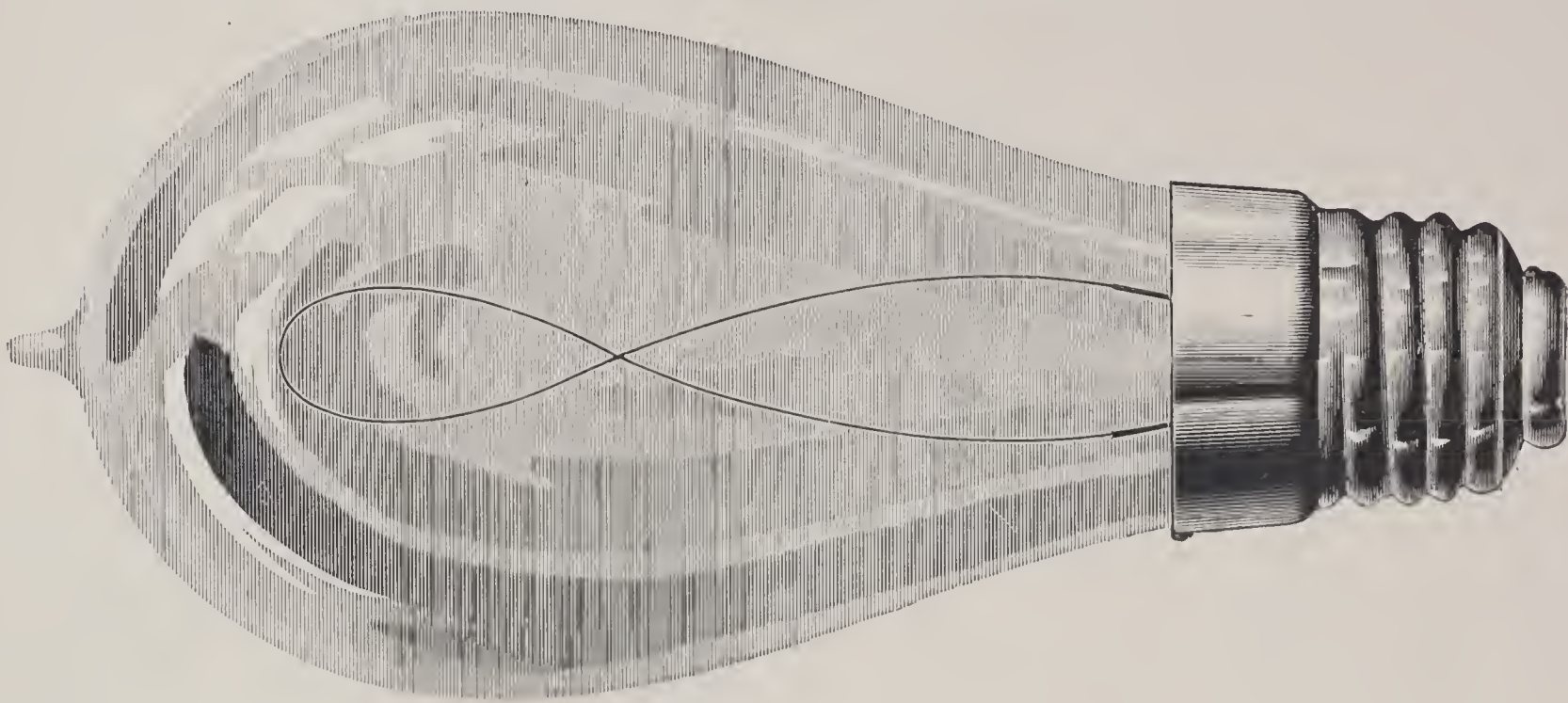
50 CANDLE POWER.				Price.
Trade Word.	Voltage.			
Arbitrary.	50	Volts	.....each,	\$1.50
Arbitrate.	100	"	....."	1.50
Arbitration.	110	"	....."	1.50
Arbitrator.	115	"	....."	1.50
Arbour.	120	"	....."	1.50

Other Voltages and Candle Powers to order.  
For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT LAMPS.



To fit Edison Sockets.

16 CANDLE POWER.

Trade Word.	Voltage.		Price.
Arcade.	50 volts	..... each,	\$0.70
Arch.	100 "	..... "	.75
Archangel.	110 "	..... "	.75
Archbishop.	115 "	..... "	.75
Archdeacon.	120 "	..... "	.75

25 CANDLE POWER.

Trade Word.	Voltage.		Price.
Archer.	50 volts	..... each,	\$0.80
Arching.	100 "	..... "	.85
Architect.	110 "	..... "	.85
Archives.	115 "	..... "	.85
Archlike.	120 "	..... "	.85

32 CANDLE POWER.

Trade Word.	Voltage.		Price.
Archness.	50 volts	..... each,	\$0.90
Archway.	100 "	..... "	.95
Archwise.	110 "	..... "	.95
Arctic.	115 "	..... "	.95
Ardent.	120 "	..... "	.95

50 CANDLE POWER.

Trade Word.	Voltage.		Price.
Ardour.	50 volts	..... each,	\$1.50
Area.	100 "	..... "	1.50
Arena.	110 "	..... "	1.50
Argent.	115 "	..... "	1.50
Argue.	125 "	..... "	1.50

Other Voltages and Candle Power to order.

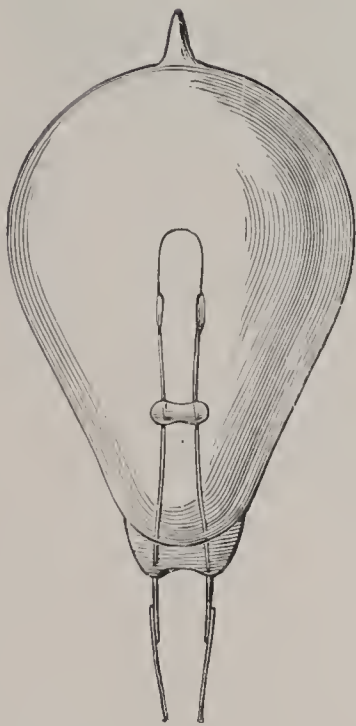
For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

MINIATURE INCANDESCENT LAMPS.

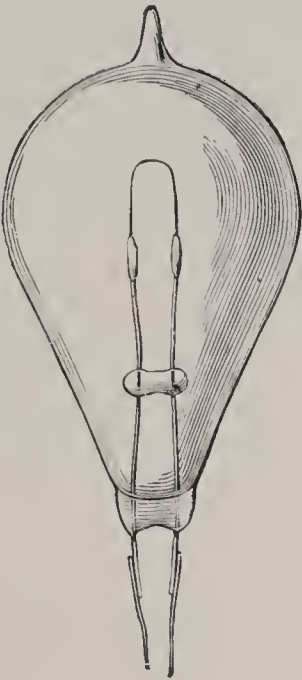
(Engravings Full Size.)



6-CANDLE.

6 to 7 Ohms, 9 to 12 Volts, 1 to 1½ Ampères.

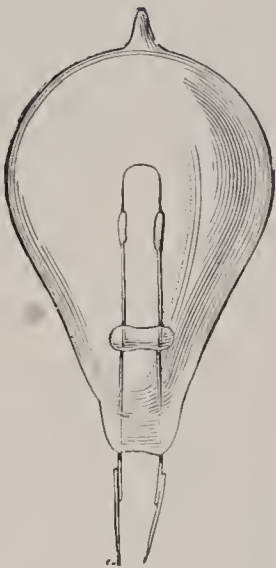
Trade Word.  
Argument.....each, \$1.50



4-CANDLE.

5 to 6½ Ohms, 7 to 9½ Volts, 1 to 1½ Ampères.

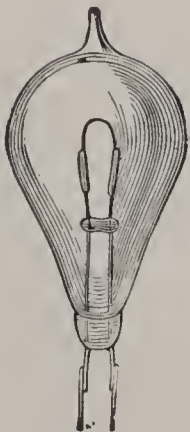
Trade Word.  
Arid.....each, \$1.50



3-CANDLE.

3½ to 4½ Ohms, 5½ to 7 Volts, 1 to 1½ Ampères.

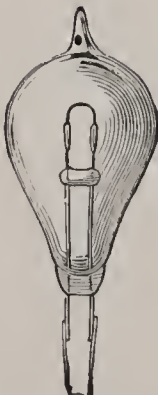
Trade Word.  
Aridity.....each, \$1.50



2-CANDLE.

3⅓ to 5 Ohms, 4½ to 5½ Volts, 1 to 1½ Ampères.

Trade Word.  
Aright.....each, \$1.50



1-CANDLE.

2⅑ to 4½ Ohms, 3½ to 5½ Volts, 1 to 1½ Ampères.

Trade Word.  
Arise.....each, \$1.50



1-2 CANDLE.

1⅓ to 2 Ohms, 2½ to 4 Volts, 1 to 1½ Ampères.

Trade Word.  
Arisen.....each, \$1.50

For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## MINIATURE INCANDESCENT LAMPS—Continued.

CUTS FULL SIZE.

The Dental, Surgical and Pea Lamps rate at about  $\frac{1}{2}$  candle power. For batteries adapted to these lamps, see Batteries.



**DENTAL.**

$1\frac{1}{10}$  to  $3\frac{1}{2}$  ohms; 2 to 4 volts;  
 $1\frac{3}{10}$  amperes.

Trade Word.	Price.
Aristocrat . . . . .	each, \$2.00



**SURGICAL.**

$1\frac{7}{10}$  to  $2\frac{3}{10}$  ohms; 2 to  $2\frac{1}{2}$  volts;  
1 ampere.

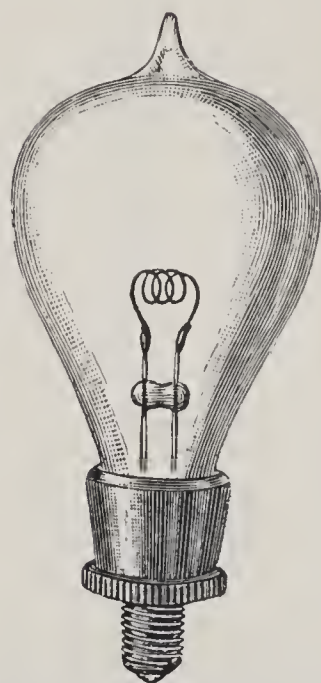
Trade Word.	Price.
Arithmetic . . . . .	each, \$4.00



**PEA.**

$1\frac{2}{10}$  to 2 ohms; 2 to 4 volts;  
 $1\frac{4}{10}$  amperes.

Trade Word.	Price.
Ark . . . . .	each, \$4.00

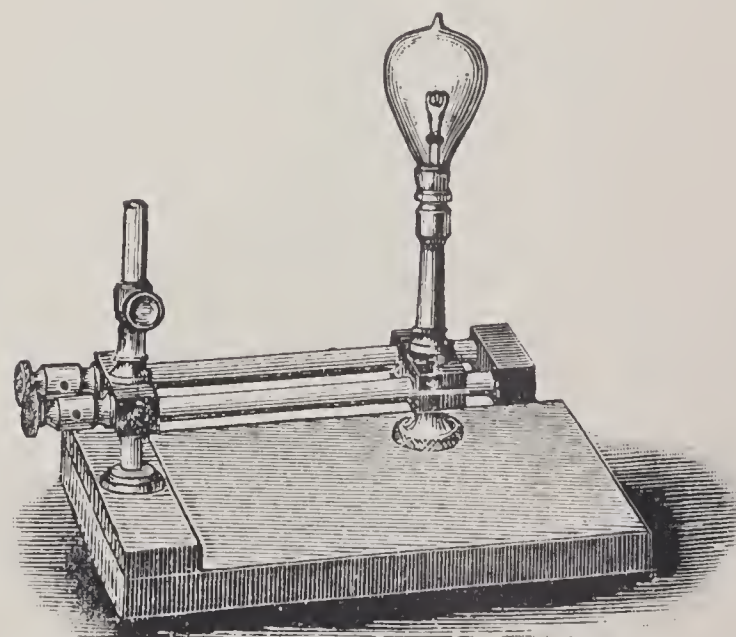


**MAGIC LANTERN LAMP.**

Cut is actual size, and shows lamp mounted in socket. It is made with a spiral carbon, and intended for Magic Lantern and other use where a brilliant concentrated light is required.

Power, 20 candles; Resistance, about 34 ohms; Voltage, 30 to 38; Amperes, 1 to 1.75.

Trade Word.	Price.
Armada. Unmounted . . . . .	\$5.00
Armament. Mounted . . . . .	6.50



**MINIATURE FOCUSING STAND, FOR MAGIC LANTERNS, ETC.**

Made to receive lamps mounted with Miniature Screw Sockets. It enables the lamp to be raised or lowered, turned to right or left, or to be moved forward or back at will without altering the position of the stand base.

Trade Word.	Price.
Armature. Without Lamp . . . . .	\$8.00

**For Explanation of Trade Word see page 4.**



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

MINIATURE INCANDESCENT LAMPS—Continued.



MINIATURE LAMP.

Mounted in Miniature Screw Socket.

Trade Word.	Price.
Arming.....	each, \$3.00

MINIATURE SCREW SOCKETS.

These sockets are so made as to secure automatic connections when the lamp is screwed into its place, as in the case of the Criado Illuminators, Bartholdi Electric Statuettes, Magic Lantern Lamps, etc., etc.

Trade Word.	Price.
Armful. For ½, 1 and 2 C. P. Lamps.....	\$0.60
Armhole. “ 3, 4 “ 6 “ .....	.80



BARTHOLDI ELECTRIC STATUETTE.

Made in Bronze and Nickel. Tastefully Variegated.

Twelve inches high, including pedestal. Mounted with 2 candle power lamp, and provided with Battery which will run from 1 to 2 hours at a single filling, and expense of about 10c. for the fluid.

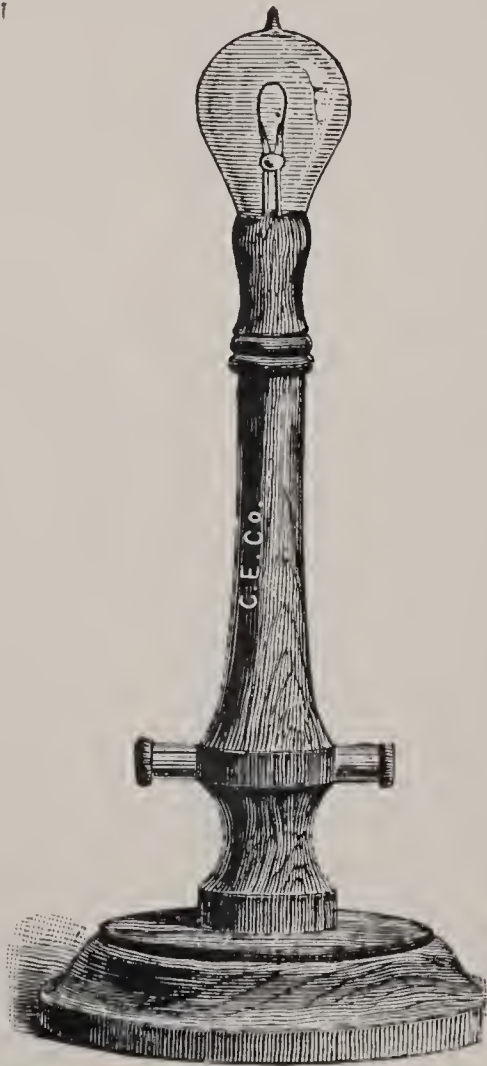
Trade Word.	Price.
Aroma. Complete, with Battery.....	\$24.00
Aromatic. Without Battery.....	17.00
Arose. Extra Lamps, Mounted.....	3.00



MINIATURE LAMP HOLDER.

Made of first-class materials and handsomely finished. Used for attachment to miscellaneous fixtures and instruments.

Trade Word.	Price.
Armistice. Hard Rubber Holder, for Surgical ½, 1 and 2 Candle Lamps. ....	\$0.40
Armless. Hard Rubber, for Dental, 3, 4 and 6 Candle Lamps.....	.50
Armlet. In Brass, for ½, 1 and 2 Candle Lamps.	.40
Armour. “ “ 3, 4 “ 6 “ “	.50



MINIATURE LAMP STAND AND LAMP.

Any size of Miniature Lamp, from ½ to 6 candle power, mounted on black walnut stands, with binding posts, as per illustration. Stand measures about 5¼ inches in height, and is detachable from the base. Purchaser can mount his own lamp on stand by passing wires through the pillar, after insulating them with rubber, silk or other material, and then connecting them to the binding posts.

Trade Word.	Price.
Around. Miniature Lamp and Stand, mounted.....	each, \$4.00
Arraign. Miniature Lamp Stand, separate... “	1.00

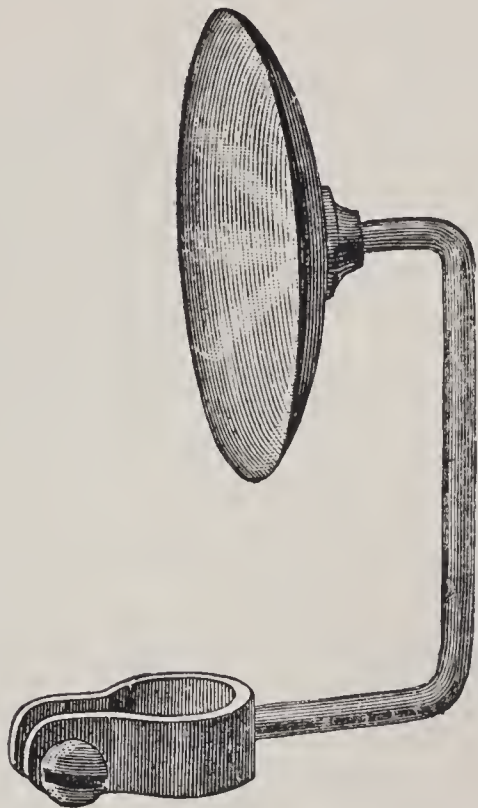
For Explanation of Trade Word see page 4.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## MINIATURE INCANDESCENT LAMPS—Continued.

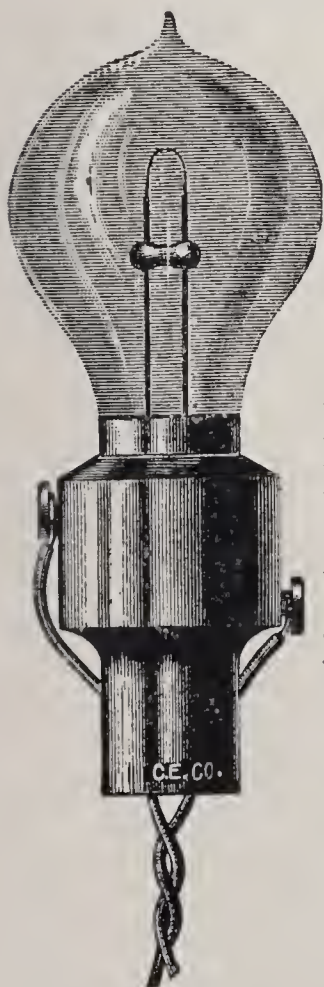
### MINIATURE LAMP REFLECTORS.



The Miniature Lamp Reflector is about two inches in diameter, and is designed for use with lamp stands, where it is desired to project the light forward, as for instance, where a lamp is used at night in front of a clock, etc. The Reflector is provided with a clamp to fasten it to the Miniature Lamp Stand, or other suitable device.

Trade Word.	Price.
Arrange .....	\$2.00

### MINIATURE BAYONET SOCKET.

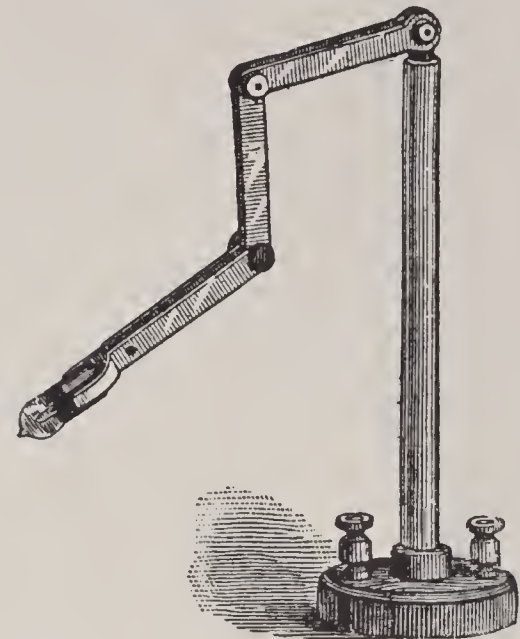


Cut shows lamp mounted therein, and wires attached.

These are made of a fire-proof material in a substantial workman-like manner. They are made in two sizes—small size to receive  $\frac{1}{2}$ , 1 and 2 candle power lamps, and large size to receive 3, 4 and 6 candle power lamps. Lamps can be renewed or changed without altering the wire connections.

Trade Word.	Size.	Price.
Arrest.	To fit $\frac{1}{2}$ , 1 and 2 C. P. Lamp, each,	\$1.00
Arrival.	“ 3, 4 and 6 C. P. Lamp, “	1.00

### THE ADJUSTABLE MICRO-ELECTRIC LAMP HOLDER.



An instrument of superior electrical excellence, designed for the use of microscopists and others desirous of focusing light on slides or objects on which it would be impossible to obtain sufficient light from gas or kerosene. We mount  $\frac{1}{2}$  and 1 candle lamps in hard rubber sockets, with copper band connections, as shown in cut, for use in connection with the Micro-Electric Holder.

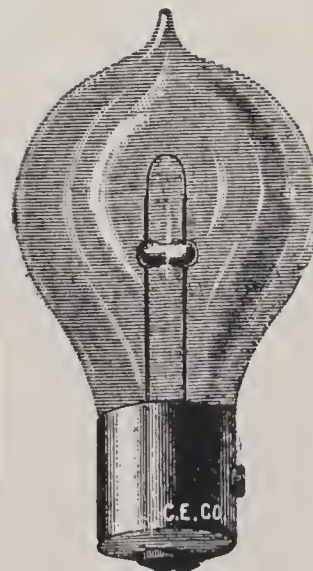
Trade Word.	Price.
Arrant. Without Lamp .....	\$15.00
Array. With Lamp .....	18.00

### MICRO-ELECTRIC LAMP.



Trade Word.	Price.
Arranged .....	\$1.50

### MINIATURE LAMP. Mounted with a Bayonet Base.



$\frac{1}{2}$ , 1, 2, 3, 4, or 6 candle power lamps are so mounted for use in connection with the Miniature Bayonet Socket.

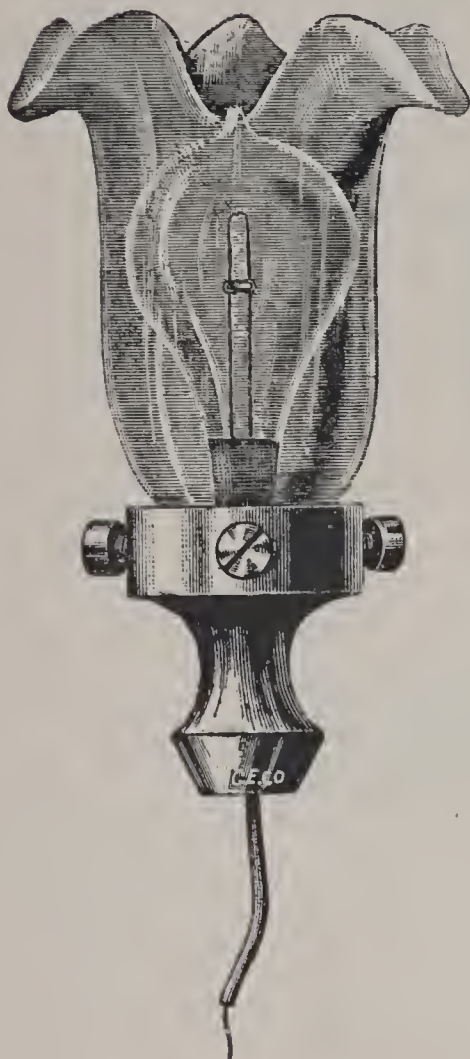
Trade Word.	Price.
Arriving .....	each, \$2.50

For Explanation of Trade Word see page 4.



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

MINIATURE INCANDESCENT LAMPS—Continued.



Tulip Shape Miniature Lamp  
Shade and Miniature  
Shade Holder.

MINIATURE SHADE HOLDERS.

These shade holders are made of brass and intended for the reception of lamps mounted with the Miniature Screw Sockets. Will receive all sizes of lamps from  $\frac{1}{2}$  to 6 candle power. These holders can be screwed on small brass tube to form brackets or other fixtures, the tube forming one connection and the other connection or wire running through its centre.

Trade Word.	Price.
Arsenal.....	each, \$1.00

MINIATURE LAMP SHADES FOR MINIATURE LAMPS.

These shades will not be made in other than the above standard shapes, sizes and colors, except on orders for a dozen or more of a kind at a time, and then at special prices.

In ordering, state what size lamp the shades are for.

TULIP SHAPE.

Trade Word.	Color.	Price.
Art.	Opal.....	each, \$1.00
Artery.	Red.....	“ 1.00
Artful.	Green.....	“ 1.00
Artfully.	Blue.....	“ 1.00

FLAT CONE SHAPE.

Trade Word.	Price.
Article. Opal only.....	each, \$1.00



ELECTRIC LIGHT SCARF PIN OUTFITS.

ELECTRIC SCARF PIN.

Consists of a Scarf Pin mounted with a  $\frac{1}{2}$  candle power Miniature Incandescent Lamp, the patented Pocket Electric Battery, measuring 1 inch in thickness, width 3 inches, height 4 inches, an outside protection case of hard rubber to cover the battery, together with a Flexible Silk Conducting Cord, mounted with a Contact Presselle and connectors for both the Scarf Pin and Pocket Battery. The Pin can be worn either with or without the battery attached.

Trade Word.	Price.
Articulate.	Scarf Pin, outfit complete.....\$12.00
Artifice.	Scarf Pin, mounted with Lamp..... 4.00
Artificial.	Lamp without Scarf Pin..... 2.00
Artillery.	Pocket battery with protection case..... 9.00
Artisan.	Protection Case without battery..... 1.50
Artist.	Extra Zincs for battery..... per set, .50
Artistic.	Flexible Cord mounted with presselle and connectors..... 2.00

For Explanation of Trade Word see page 4.

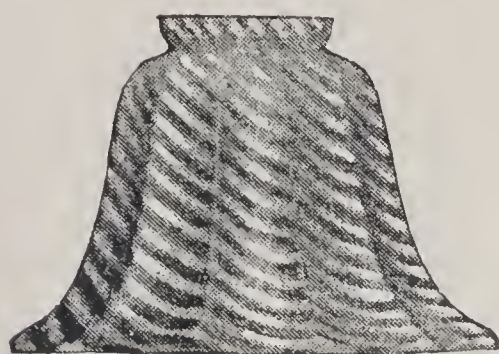


## INCANDESCENT ELECTRIC LIGHT SUPPLIES.

We make no allowance for breakage on glassware, as we exercise the utmost care in packing, and all goods are shipped at the purchaser's risk.

### INCANDESCENT SHADES.

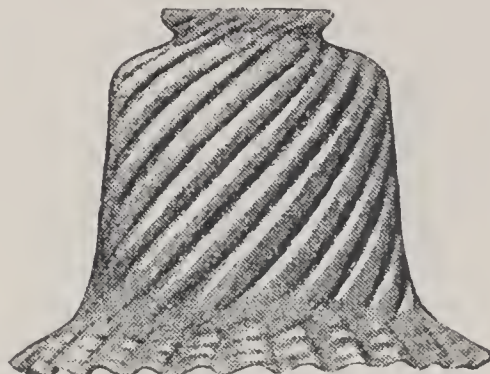
When ordering glass shades please use numbers.



No. 101.

Twist,  $4\frac{1}{4}$  in. height, 6 in. diameter,  
 $2\frac{1}{4}$  in. holder.

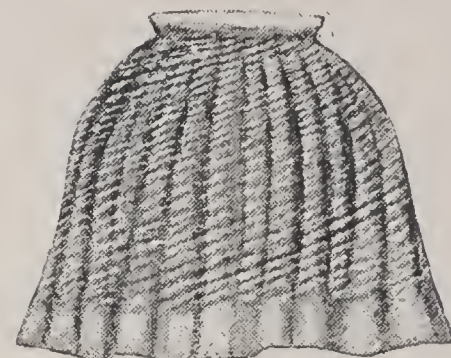
Flint Opalescent... per doz., \$11.00



No. 102.

Twist,  $4\frac{1}{2}$  in. height, 6 in. diameter,  
 $2\frac{1}{4}$  in. holder.

Ruby or Pink Opalescent, p. doz., \$15.00  
Flint Opalescent, Light Blue Opal-  
escent or Amber.... per doz., 7.50



No. 103.

Ribbed,  $4\frac{1}{4}$  in. height, 5 in. diameter,  
 $2\frac{1}{2}$  inch holder.

Crystal or Flint Opalescent,  
..... per doz., \$9.00



No. 104.

Fluted, Twist,  $2\frac{1}{4}$  inch holder o  
Edison Socket.

Pink Opalescent, per dozen,

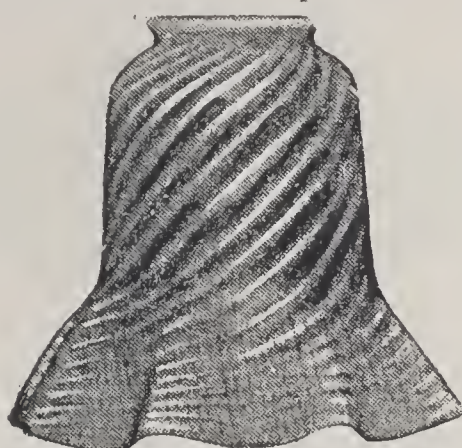
DIAMETER—INCHES:

5	6	7	8	10
\$15.00	\$17.50	\$18.00	\$20.00	\$22.50

Flint Opalescent, Light Blue Opalescent  
or Amber. per dozen,

DIAMETER—INCHES:

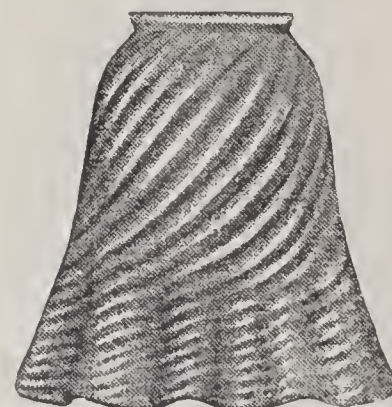
5	6	7	8	10
\$7.50	\$8.50	\$9.00	\$10.00	\$11.25



No. 105.

Twist,  $5\frac{1}{2}$  in. height, 6 in. diameter,  
 $2\frac{1}{2}$  in. holder.

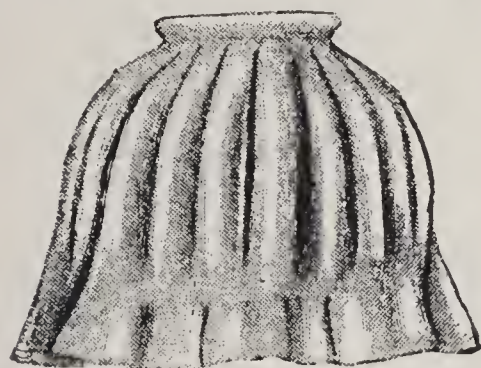
Ruby..... per doz., \$18.00  
Flint Opalescent, Light Blue Opal-  
escent or Amber.... per doz., 11.00



No. 106.

Twist, 5 inch height, 5 inch diameter,  
 $2\frac{1}{4}$  inch holder.

Flint Opalescent..... per doz., \$9.00



No. 107.

Ribbed,  $4\frac{1}{4}$  inch height, 5 inch diameter,  
 $2\frac{1}{4}$  inch holder.

Flint Opalescent..... per doz., \$12.00



No. 108.

Twist, 5 in. height,  $4\frac{1}{4}$  in. diameter,  
 $2\frac{1}{4}$  inch holder.

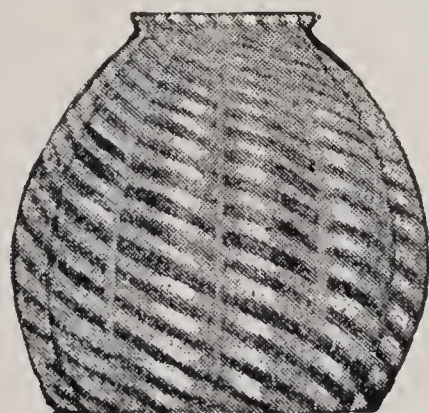
Flint Opalescent... per doz., \$9.00



No. 109.

Twist,  $4\frac{1}{4}$  inch height,  $5\frac{1}{2}$  inch diameter,  
 $2\frac{1}{4}$  or  $3\frac{1}{4}$  inch holder.

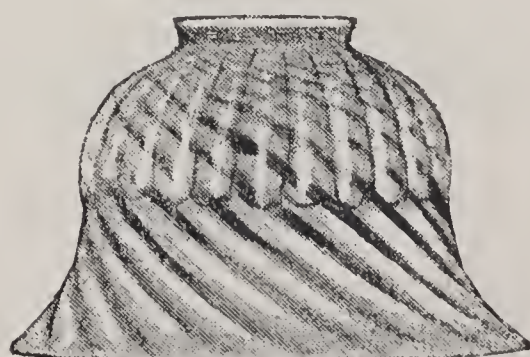
Ruby..... per doz., \$15.00  
Flint Opalescent, Light Blue Opal-  
escent or Amber.... per doz., 7.50



No. 110.

Melon, Twist, 5 inch height,  $4\frac{1}{2}$  inch  
diameter,  $2\frac{1}{4}$  inch holder.

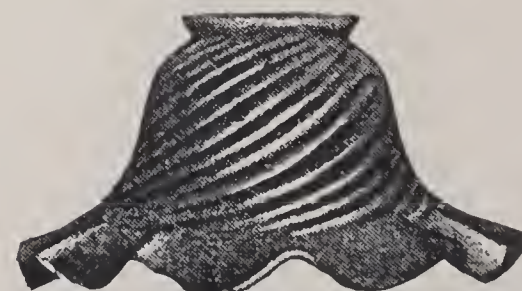
Flint Opalescent..... per doz., \$5.00



No. 111.

Twist, 4 in. height,  $6\frac{1}{4}$  in. diameter,  
 $2\frac{1}{4}$  in. holder.

Flint Opalescent... per doz., \$5.50



No. 112.

Twist,  $3\frac{3}{4}$  inches height,  $2\frac{1}{4}$  or  $3\frac{1}{4}$  inch  
holder.

Flint Opalescent, per dozen,  
DIAMETER—INCHES:

6, \$7.50; 7, \$8.50; 8, \$9.00; 10, \$11.00



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT SHADES.

When ordering these goods please use numbers.



No. 113.  
Twist, 4 inch height, 6½ inch diameter,  
2½ inch holder.  
Flint Opalescent.....per doz., \$7.50



No. 114.  
Zigzag, 4½ inch height, 5 in. diam-  
eter, 2½ inch holder.  
Flint Opalescent..per doz., \$12.00



No. 115.  
Diamond, 4 inch height, 5 inch diame-  
ter, 2½ inch holder.  
Ruby. . . . .per doz., \$14.00  
Flint Opalescent, L't Blue Opal-  
escent or Amber....per doz., 7.50



No. 116.  
Spot, 4½ inch height, 5 inch diameter,  
2½ inch holder.  
Ruby. . . . .per doz., \$14.00  
Flint Opalescent, L't Blue Opal-  
escent or Amber....per doz., 7.50



No. 117.  
4 inch height, 7 inch diameter,  
2½ or 3½ inch holder.  
Flint Opalescent, assorted  
Tinted Edges...per doz., \$22.50  
Opalescent, *not* Tinted  
Edges.....per doz., 11.00



No. 118.  
Wart, 4 inch height, 5½ inch diameter,  
2½ or 3½ inch holder.  
Assorted Tinted Edges, per doz., \$18.00



No. 119.  
Ribbed, 4¾ inch height, 6 inch diame-  
ter, 2½ or 3½ inch holder.  
Flint Opalescent....per doz., \$12.50



No. 120.  
Twist, 4½ inch height, 5 inch diam-  
eter, 2½ inch holder.  
Flint Opalescent...per doz., \$9.00



No. 121.  
Twist, 4½ inch height, 5½ inch diame-  
ter, 2½ or 3½ inch holder.  
Ruby... . . . .per doz., \$14.00  
Flint Opalescent, L't Blue Opal-  
escent or Amber....per doz., 7.50



No. 122.  
Spot, 4 inch height, 5½ inch diameter,  
2½ or 3½ inch holder.  
Ruby.... . . . .per doz., \$14.00  
Flint Opalescent, L't Blue Opal-  
escent or Amber....per doz., 7.50



No. 123.  
Spot, 2½ inch height, 2½ inch holder  
or Edison Socket.  
Flint Opalescent:  
6 inch diam....per doz., \$7.50  
7 " " " " " 8.50  
8 " " " " " 9.00  
Crystal, 6 in. diam. " " 7.00  
" 7 " " " " 7.50  
" 8 " " " " 8.50



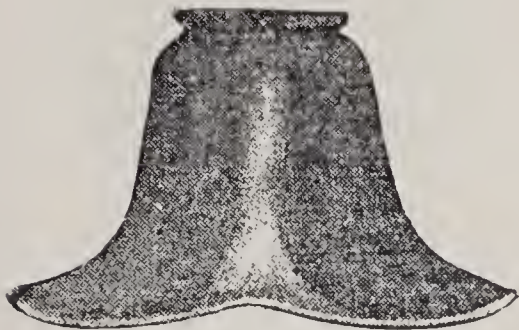
No. 124.  
3½ inch height, 6 inch diameter, 2½ in.  
holder or Edison Socket.  
Flint Opalescent. ....per doz., \$8.50  
Opal... . . . . " " 7.00



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT SHADES.

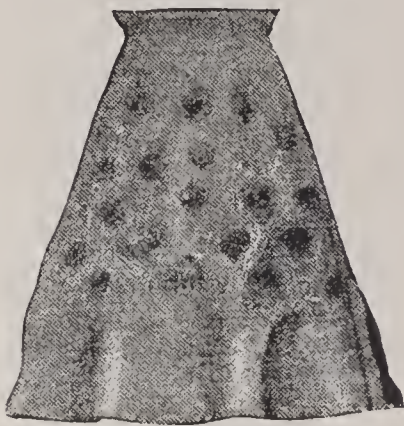
When ordering these goods please use numbers.



No. 125.  
4 inch height, 6 inch diameter, 2½ or 3½  
inch holder.  
Flint Opalescent, ass't'd Tint'd  
Edges.....per doz., \$18.00  
Opalescent, not Tinted Edges,  
.....per doz., 10.00



No. 126.  
2½ inch height, 5 inch diam., 2½ in.  
holder or Edison Socket.  
Flint Opalescent...per doz., \$6.50  
Opal ... .. " " 5.00



No. 127.  
Diamond, 5½ inch height, 5 inch diam.,  
2½ inch holder.  
Pink Opalescent.....per doz , \$15.00  
Flint Opalescent, Light Blue  
Opalescent or Amber, per dz., 7.50



No. 128.  
Etched, 4½ inch height, 6 inch diam.,  
2½ inch holder.  
Crystal.. .....per doz., \$22.50



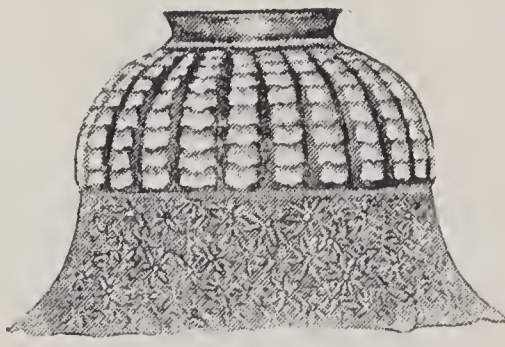
No. 129.  
Etched, 4½ inch height, 6 in. diam.,  
2½ inch holder.  
Crystal.....per doz., \$22.00



No. 130.  
Rich Cut and Etched, 4½ inch height,  
6 inch diam., 2½ inch holder.  
Crystal.....per doz., \$36.00



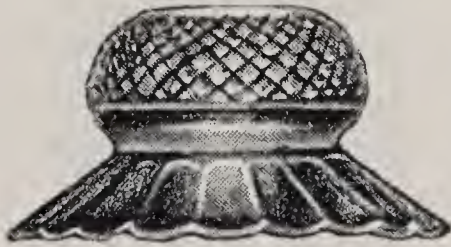
No. 131.  
Etched, 3½ inch height, 6½ inch diam.,  
2½ inch holder.  
Crystal.....per doz., \$12.50



No. 132.  
Etched, 4 in. height, 6½ in. diam.,  
2½ inch holder.  
Crystal, Plain Edge.....  
.....per doz., \$15.00  
Crystal, Scalloped Edge....  
.....per doz., 18.00



No. 133.  
Etched, 3½ inch height, 5 inch diam.,  
2½ inch holder.  
Crystal.....per doz., \$24.00



No. 134.  
Rich Cut, 3 inch height, 5½ inch diam.,  
1½ inch holder or Edison socket.  
Crystal.....per doz., \$66.00



No. 135.  
Etched, 3½ inch height, 5½ inch  
diam., 2½ inch holder.  
Crystal.....per doz., \$20.00



No. 136.  
Etched, 3 inch height, 6½ inch diam.,  
2½ inch holder.  
Crystal.....per doz., \$15.00



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT SHADES.

When ordering these goods please use numbers.



No. 137.  
Rich Cut, 4 inch height, 4½ inch diameter, 2¼ inch holder.  
Crystal.....per dozen, \$84.00



No. 138.  
Rich Cut, 5½ inch height, 4½ inch diameter, 2¼ inch holder.  
Crystal.....per doz., \$78.00



No. 139.  
Rich Cut, Melon, 5 inch height, 4½ inch diameter, 2¼ inch holder.  
Crystal.....per doz., \$42.00



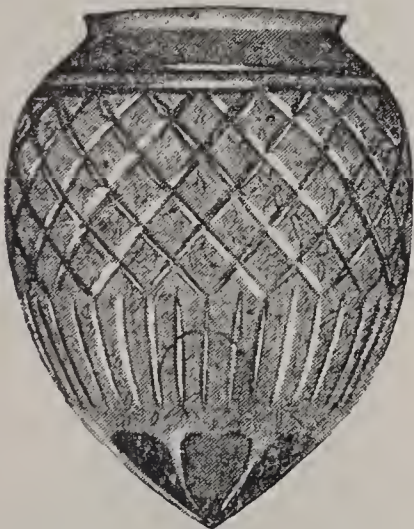
No. 140.  
Etched, 5½ inch height, 5 inch diameter, 2¼ inch holder.  
Crystal.....per doz, \$18.00



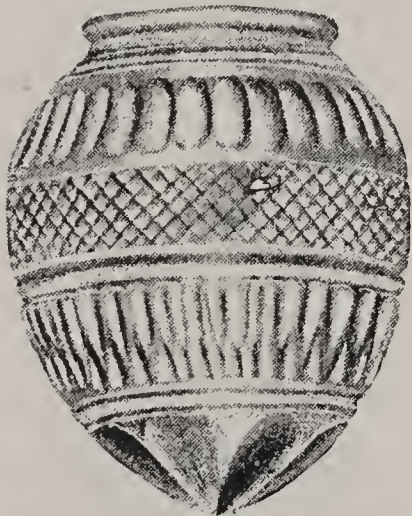
No. 141.  
Etched, 4½ inch height, 5 inch diameter, 2¼ inch holder.  
Crystal.....per doz., \$18.00



No. 142.  
Etched, 7 inch height, 5½ inch diameter, 3¼ inch holder.  
Crystal.....per doz.. \$24.00



No. 143.  
Cut and Etched, 7 inch height, 5½ inch diameter, 3¼ inch holder.  
Crystal.....per doz., \$51.00



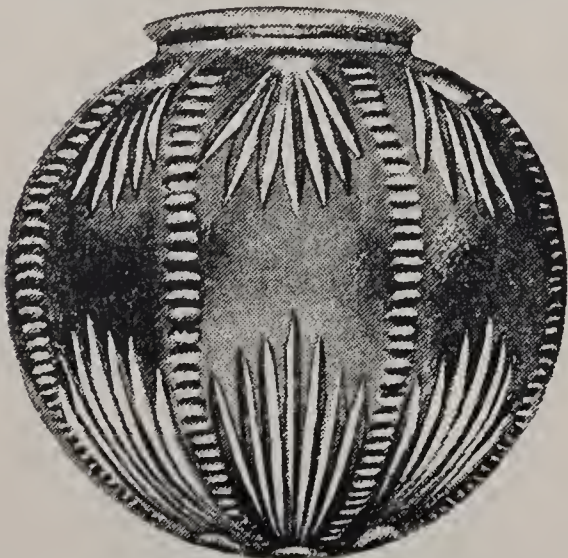
No. 144.  
Rich Cut, 6½ inch height, 5 inch diameter, 3¼ inch holder.  
Crystal.....per doz., \$90.00



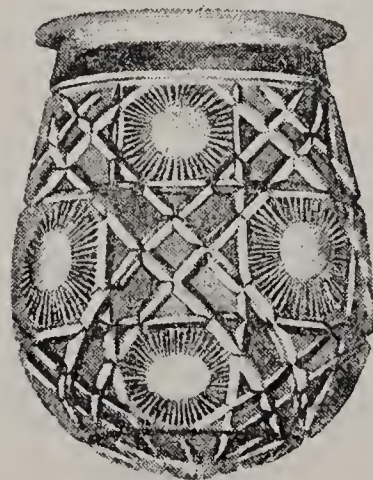
No. 145.  
Cut and Etched, 6½ inch height, 5 inch diameter, 3¼ inch holder.  
Crystal... per doz., \$40.00



No. 146.  
Metallic Etching, Melon, 7 inch height, 5 inch diameter, 3¼ inch holder.  
Crystal.....per doz., \$18.00



No. 147.  
Rich Cut, Crystal. Give size of holder when ordering.  
Diam.—ins. 6 7 8  
per doz., \$10.00 \$11.00 \$12.50  
Diam.—ins. 10 12 14  
per doz., \$22.50 \$30.00 \$45.00



No. 148.  
Rich Cut, 5½ inch height, 4½ inch diameter, 3¼ inch holder.  
Crystal..... per doz., \$135.00



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## STALACTITES, BULBS, ETC.

When ordering these goods please use numbers.



No. 149.

Cut and Etched, 6½ inch height,  
5 inch diameter, ¾ inch  
holder; Crystal....per doz., \$54.00



No. 150.

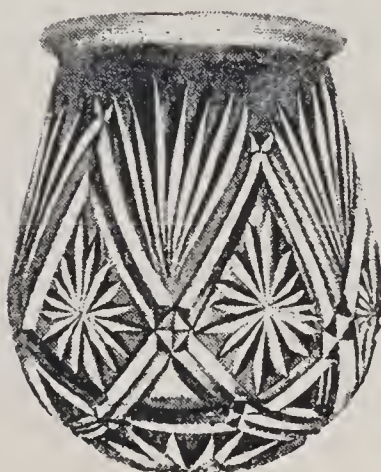
Rich Cut, Star and Hobnail; Crystal;  
Give size of holder when ordering.

Diam. in....	6	7	8
Per dozen...	\$12.50	\$14.50	\$26.00
Diam. in...	10	12	14
Per dozen...	\$50.00	\$84.00	\$120.00



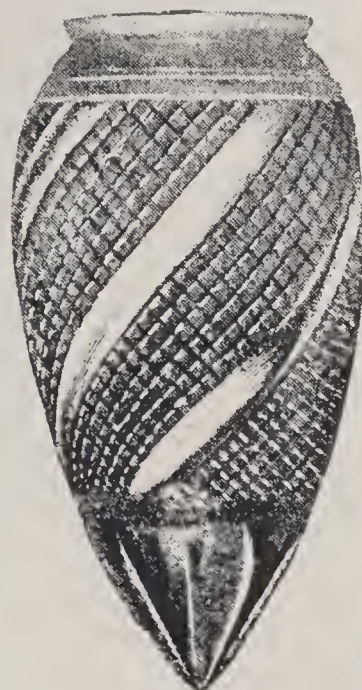
No. 151.

Etched, Fluted, 7 inch height,  
5½ inch diameter, ¾ inch  
holder; Crystal....per doz., \$24.00



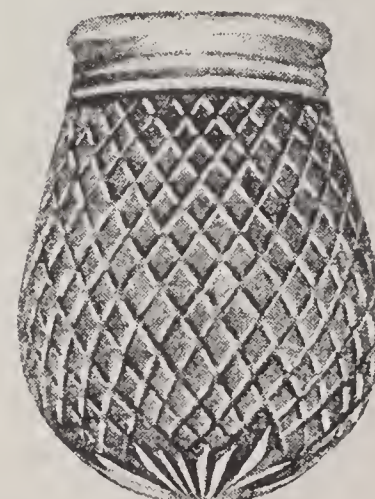
No. 152.

Rich Cut, 5½ inch height, 4¾  
inch diameter, ¾ inch hold-  
er; Crystal.....per doz., \$120.00



No. 153.

Rich Cut, 8¾ inch height,  
4½ inch diam., ¾ inch  
holder; Crystal, per doz., \$135.00



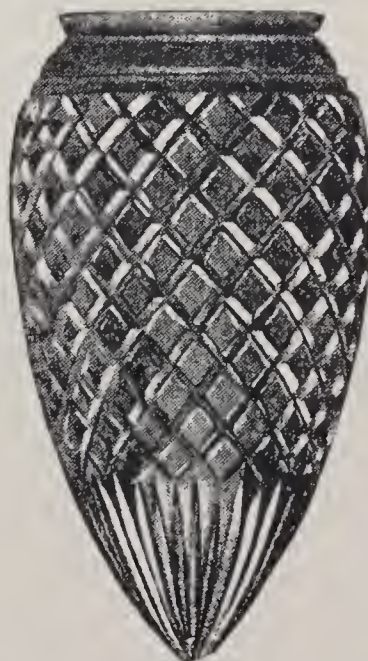
No. 154.

Rich Cut, 5½ inch height, 4 inch  
diameter, ¾ inch holder;  
Crystal.....per doz., \$75.00



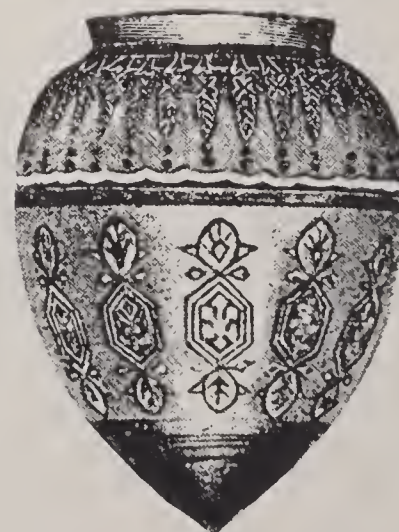
No. 155.

Rich Cut, Prism and Bead, 8¾  
inch height, 4½ inch diam., ¾  
in. holder; Crystal, per doz., \$150.00



No. 156.

Rich Cut, 8¾ inch height,  
4½ inch diam., ¾ inch  
holder; Crystal..per doz., \$72.00



No. 157.

Metallic Etching, 7 inch height,  
5 inch diameter, ¾ inch  
holder; Crystal....per doz., \$27.00



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

STALACTITES, BULBS, ETC.

When ordering these goods please use numbers.



No. 158.

Twist, 6½ inch height, 6 inch diameter, ¾ inch holder.

Per Doz.

Ruby.....\$18.00  
Flint Opalescent..... 14.00  
Crystal..... 12.50



No. 159.

Heavy, Twist Rib, 6½ inch height, 5 inch diameter, ¾ inch holder.

Per Doz.

“Fiery” Opalescent.....\$16.00  
“Extra” Crystal..... 22.50  
Crystal ..... 12.50

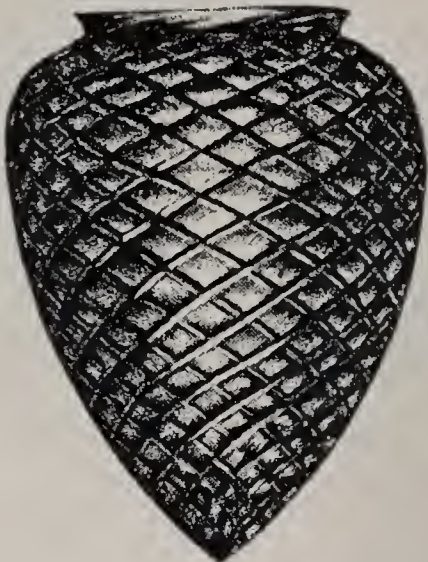


No. 160.

Twist, 9 inch height, 7 inch diameter, 5 inch holder.

Per Doz.

Flint Opalescent.....\$21.00  
Crystal..... 18.00

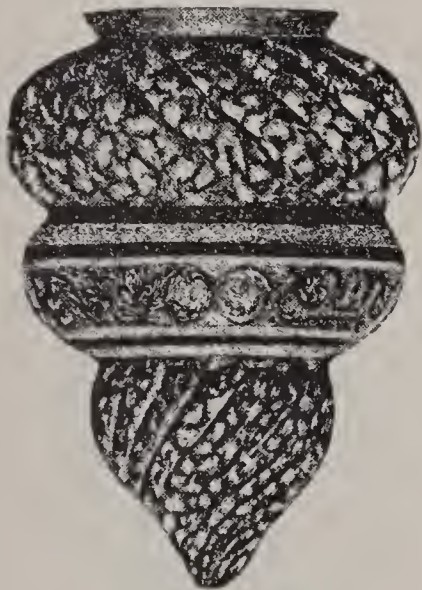


No. 161.

Diamond, 8 inch height, 6¼ inch diameter, ¾ inch holder.

Per Doz.

Flint Opalescent.....\$15.00  
Crystal ..... 14.00



No. 162.

Etched, 8 inch height, 5½ inch diameter, ¾ inch holder.

Crystal ..... per doz., \$24.00



No. 163.

Heavy, Twist Rib.

Height—inches.....	7	7½	8½	9	10	12	13	14
Diameter, “.....	4½	4¾	5¼	5½	6	7	8	9
“Extra” Crystal... per doz.,	\$23.00	\$24.00	\$27.00	\$30.00	\$36.00	\$42.00	\$48.00	\$63.00
“Fiery” Opalescent. “	18.00	19.50	21.00	23.00	27.00	33.00	39.00	48.00
Crystal..... “	15.00	17.50	18.00	20.00	24.00	30.00	33.00	39.00

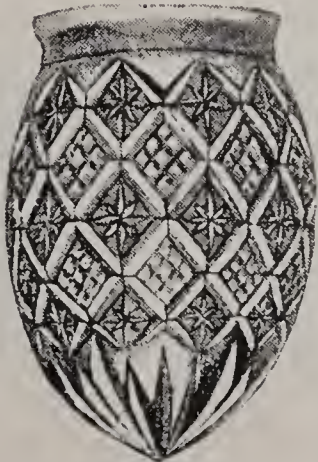
Give size of holder when ordering.



No. 164.

Flame, 8 inch height, 4½ inch diameter, ¾ inch holder.

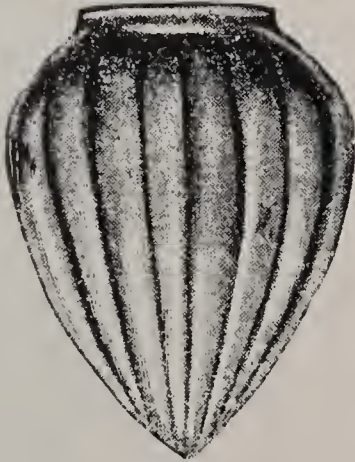
“Fiery” Opalescent.  
Per doz.....\$63.00



No. 165.

Rich Cut, 5¾ in. height, 4 inch diameter, ¾ inch holder.

Crystal... per doz., \$63.00



No. 166.

Melon, 6½ inch height, 5½ inch diameter, ¾ inch holder.

Crystal, Roughed Inside,  
Per doz.....\$11.00



No. 167.

Twist, 6½ inch height, 6 inch diameter, ¾ inch holder.

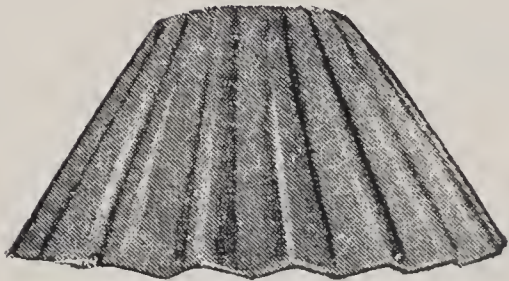
Ruby..... per doz., \$18.00  
Flint Opalescent “ 14.00  
Crystal..... “ 12.50



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## OPAL SHADES.

When ordering these goods please use numbers.



No. 168.

Fluted, Opal, for Edison Socket.

Diameter—inches....	5	6	7	8	10
Per doz.....	\$4.50	\$4.50	\$5.00	\$5.50	\$9.00



No. 169.

Opal, 3 inch height, 2½ or 3½ inch holder.

Diameter—inches.....	5	6	7	8
Per doz.....	\$4.00	\$4.50	\$4.75	\$5.25



No. 170.

Fluted, Opal, 2½ inch holder.

Diameter—inches....	5	6	7	8	10
Per doz.....	\$4.50	\$4.50	\$5.00	\$5.50	\$9.00



No. 171.

Melon, Opal, 5 inch height, 4½ inch diameter,  
2½ inch holder..... \$5.00



No. 172.

Fluted, Opal, 2½ or 3½ inch holder.

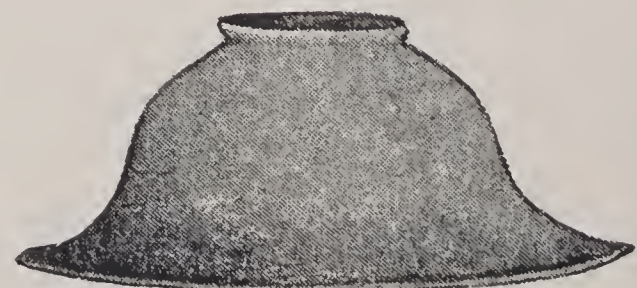
Diameter—inches.....	6	7	8	10	12	14
Per doz.....	\$4.75	\$5.00	\$5.50	\$7.50	\$11.00	\$14.00



No. 173.

Opal, 3½ inch height, 2½, 3½ inch holder or Edison Socket.

Diameter—inches....	5	6	7	8	10
Per doz.....	\$4.00	\$4.50	\$4.75	\$5.25	\$7.50



No. 174.

Opal, 3 inch height, 2½, 3½ inch holder or Edison Socket.

Diameter—inches.....	5	6	7	8
Per doz.....	\$4.00	\$4.50	\$4.75	\$5.25



INCANDESCENT ELECTRIC LIGHT SUPPLIES.

INCANDESCENT LAMP CORD.

These Cords are for ordinary use where an Okonite insulation is not required, and are carefully made. The insulation is composed of four layers compactly put on, consisting one of cotton, one of rubber, another of cotton, and the outside covering of either silk or cotton, as the case may be.

SILK COVERED.			COTTON COVERED.		
Trade Word.	B. & S. Gauge.	Per Yard.	Trade Word.	B. & S. Gauge.	Per Yard.
Artless.	No. 10.....	\$0.55	Ascertaining.	No. 10.....	\$0.43
Ascend.	" 12.....	.40	Ascetic.	" 12.....	.32
Ascendant.	" 14.....	.29½	Ascribe.	" 14.....	.21
Ascending.	" 16.....	.19½	Ascribing.	" 16.....	.12½
Ascension.	" 18.....	.16	Ashamed.	" 18.....	.09
Ascertain.	" 20.....	.12	Ashore.	" 20.....	.07

OKONITE LAMP CORDS.



These cords consist of fine wires laid together, covered with Okonite and braided. They are made in any color desired. All Okonite Lamp Cord is tested after three days' continuous immersion in water, and is absolutely waterproof.

OKONITE SILK LAMP CORD.  
Twisted Conductor.



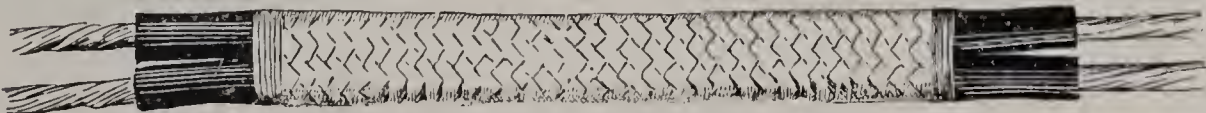
BRAIDED OKONITE LAMP CORD.

Double Conductor, Twisted or Braided Parallel.

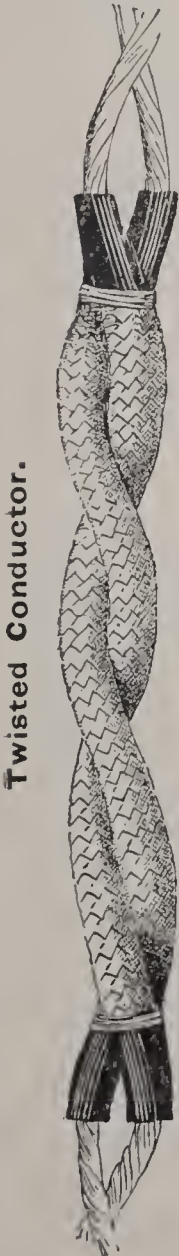
Silk Trade Word.	Size of Conductor.	Insulation.	Style of Conductor.		Insulation Resistance per mile.	Price per foot.	Cotton Trade Word.
	A. W. G.	A. W. G.	No. of Strands.	Size of Wire.			
Ashy.	22	12	7	30 A. W. G.	1000	4½	Aslant.
Aside.	20	12	10	30 “	1000	5	Asleep.
Ask.	18	10	11	30 B. W. G.	1000	7	Aslope.
Askance.	16	8	18	30 “	1000	10	Aspect.
Asked.	14	7	28	30 “	1000	12½	Aspen.
Askew.	12	6	26	26 A. W. G.	1000	15	Asperate.
Asking.	10	4	42	26 “	1000	24	Asperse.

Parallel Conductor.

No. 12 A. W. G. (26x26 A. W. G stranded); insulation resistance in water, 1,000 megohms.



For Explanation of Trade Word see page 4.



No. 20 A. W. G. (10x30 A. W. G. stranded); insulation resistance in water, 1,000 megohms.



# INCANDESCENT ELECTRIC LIGHT SUPPLIES.

## TAPED ELECTROLIER WIRE.

Single or Double Conductors.



### OKONITE INSULATION.

SINGLE CONDUCTOR.			DOUBLE CONDUCTOR.		
Trade Word.	B. & S. Gauge.	Price.	Trade Word.	B. & S. Gauge.	Price.
Aspirant.	18.....	per foot, \$0.02 $\frac{5}{8}$	Asquint.	18.....	per foot, \$0.03 $\frac{3}{4}$
Aspirate.	16.....	“ .03	Assail.	16.....	“ .05 $\frac{3}{4}$
Aspiration.	14.....	“ .03 $\frac{3}{4}$	Assailant.	14.....	“ .06 $\frac{3}{4}$
Aspire.	12.....	“ .05 $\frac{1}{2}$	Assailed.	12.....	“ .08 $\frac{1}{2}$

The two wires comprising the double conductor electrolier wire are easily separated by simply removing a portion of the tape, and, if used with Okonite Tape, make the safest and most reliable fixture work.

### OKONITE TAPE.



After several years' use, Okonite Tape stands without a competitor. It has proved all we claimed for it, being thoroughly waterproof and a perfect insulating medium. It is not injured by exposure to weather, does not deteriorate when submitted to extreme changes in temperature, and is not affected by commercial acids or alkalies. We make it in any width desired, but keep the  $\frac{1}{2}$  and  $\frac{3}{4}$  inch widths constantly in stock.

Trade Word.	Width.	Price.
Assassin.	$\frac{1}{2}$ inch, }	
Assassinate.	$\frac{3}{4}$ “ }	per pound.....\$1.50

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ARC LAMP GLOBES.

We handle Arc Globes for all systems. In ordering, care should be used to fully describe the dimensions of Globes required, or the trade word should be employed. Globes are carefully packed in casks of two dozen each, and are shipped at owner's risk. They can be all roughed, lower half roughed, or one side roughed, as required. They can also be lettered, if desired, for which an extra charge is made of \$1.00 per dozen.



Height 12 in.; Diameter 12 in.

Top Opening 8½ in.; Bottom Opening for 4¾ in. Holder.

Trade Word.		Price.
Babble.	Opal.....per doz.,	\$12.00
Baboon.	Roughed.....“	12.00
Baby.	Clear.....“	10.00



Height 10½ in.; Diameter 12 in.

Top Opening 8½ in.; Bottom Opening for 3¼ in. Holder.

Trade Word.		Price.
Bachelor.	Opal.....per doz.,	\$12.00
Back.	Roughed.....“	12.00
Backbite.	Clear.....“	10.00



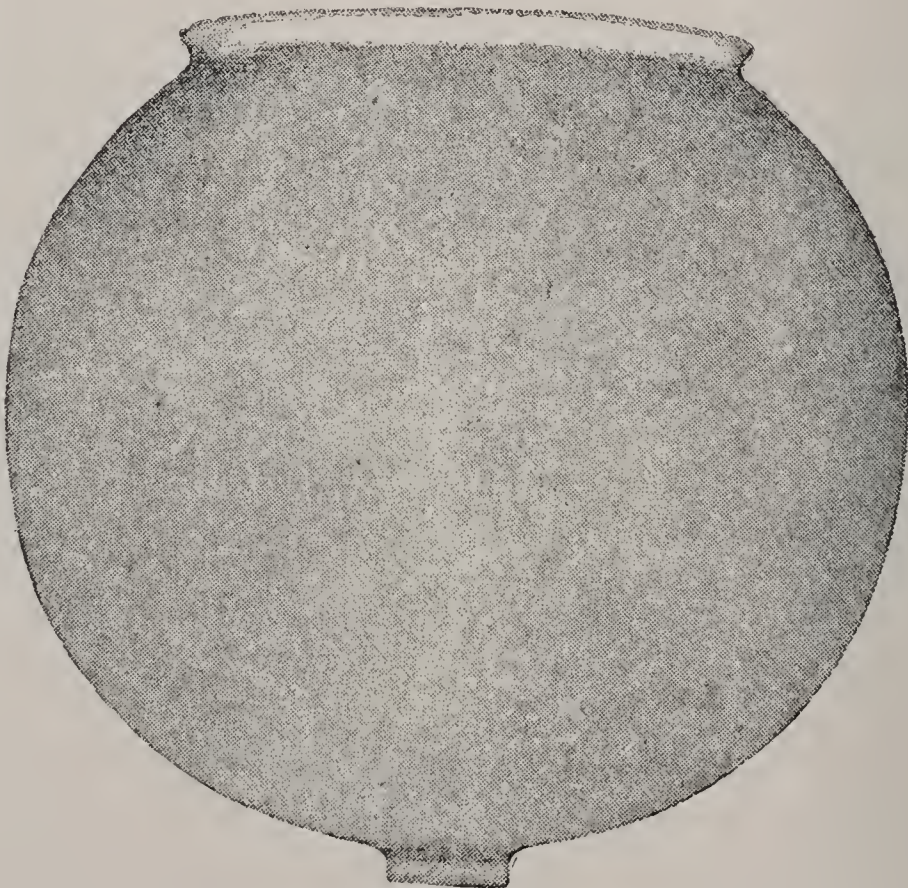
Height 12 in.; Diameter 12 in.

Top Opening 8½ in.; Bottom Opening for 4 in. Holder.

Trade Word.		Price.
Backbone.	Opal.....per doz.,	\$12.00
Backer.	Roughed.....“	12.00
Backslide.	Clear.....“	10.00

Same Dimensions, with Bottom Opening 5 in.

Trade Word.		Price.
Backward.	Opal.....per doz.,	\$12.00
Bacon.	Roughed.....“	12.00
Baconian.	Clear.....“	10.00



Height 12 in.; Diameter 12 in.

Top Opening 8 in.; Bottom Opening for 1½ in. Holder.

Trade Word.		Price.
Badge.	Opal.....per doz ,	\$16.00
Badger.	Roughed.....“	16.00
Badinage.	Clear.....“	14.00

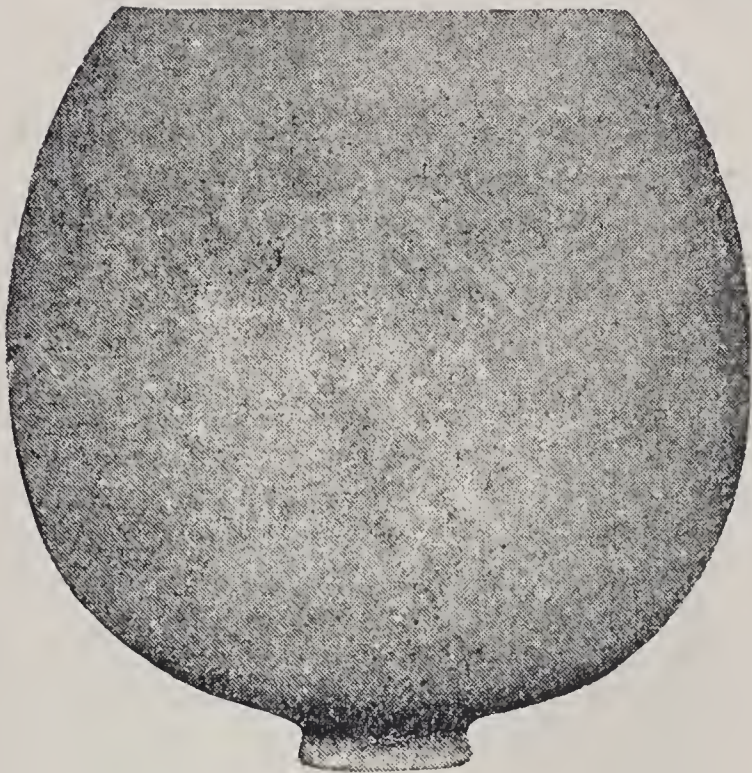
For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ARC LAMP GLOBES.

(See note at top of page 80.)



Height 11 in.; Diam. 10 in ; Bottom Opening for 2½-in. Holder.

Trade Word.		Price.
Baffle.	Opal.....per doz.,	\$10.50
Bag.	Roughed.....	10.50
Baggage.	Clear.....	9.00



Height 13 in.; Diam. 12 in.; Bottom Opening for 4-in. Holder.

Trade Word.		Price.
Baize.	Opal.....per doz.,	\$15.00
Bake.	Roughed.....	15.00
Balance.	Clear.....	12.00

Same as above for 5-in. Holder.

Trade Word.		Price.
Balcony.	Opal.....per doz.,	\$15.00
Bald.	Roughed.....	15.00
Baleful.	Clear.....	12.00

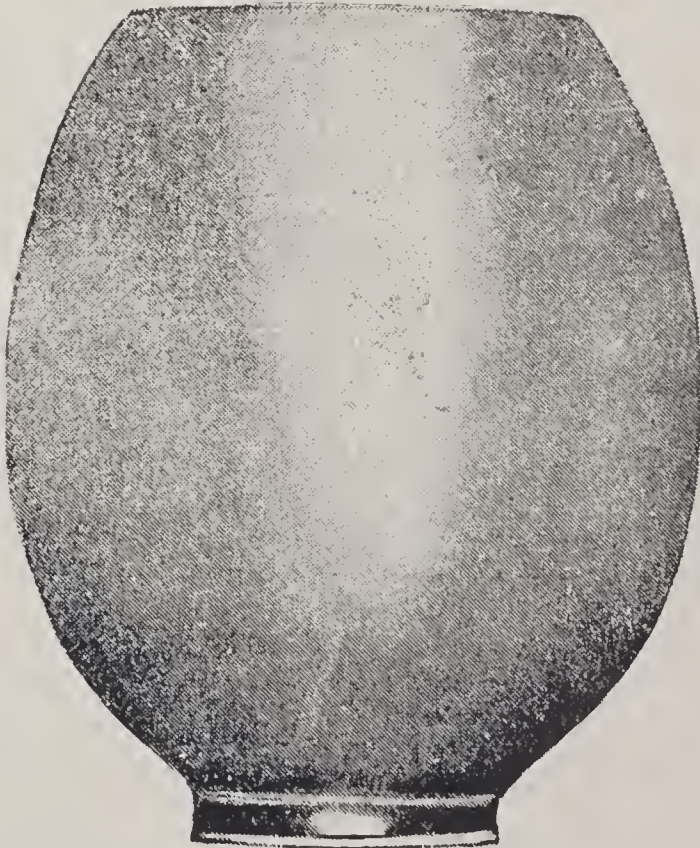


Height 9 in.; Diam. 9 in.; Bottom Opening for 3-in. Holder.

Trade Word.		Price.
Bagpipe.	Opal.....per doz.,	\$10.50
Bail.	Roughed.....	10.50
Bailable.	Clear.....	9.00

Same as above, with Bottom Opening for 4-in. Holder.

Trade Word.		Price.
Bailiff.	Opal... per doz.,	\$10.50
Bailiwick.	Roughed.....	10.50
Bait.	Clear.....	9.00



Height 12 in.; Diam. 10 in.; Bottom Opening for 4½-in. Holder.

Trade Word.		Price.
Balk.	Opal.....per doz.,	\$11.00
Balked.	Roughed.....	11.00
Ballast.	Clear.....	9.00

Same as above, with Bottom Opening for 6½-in. Holder.

Trade Word.		Price.
Ballet.	Opal.....per doz.,	\$11.00
Balloon.	Roughed.....	11.00
Ballot.	Clear.....	9.00

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ARC LAMP GLOBES.

See note at top of page 80.



ROUND GLOBE.



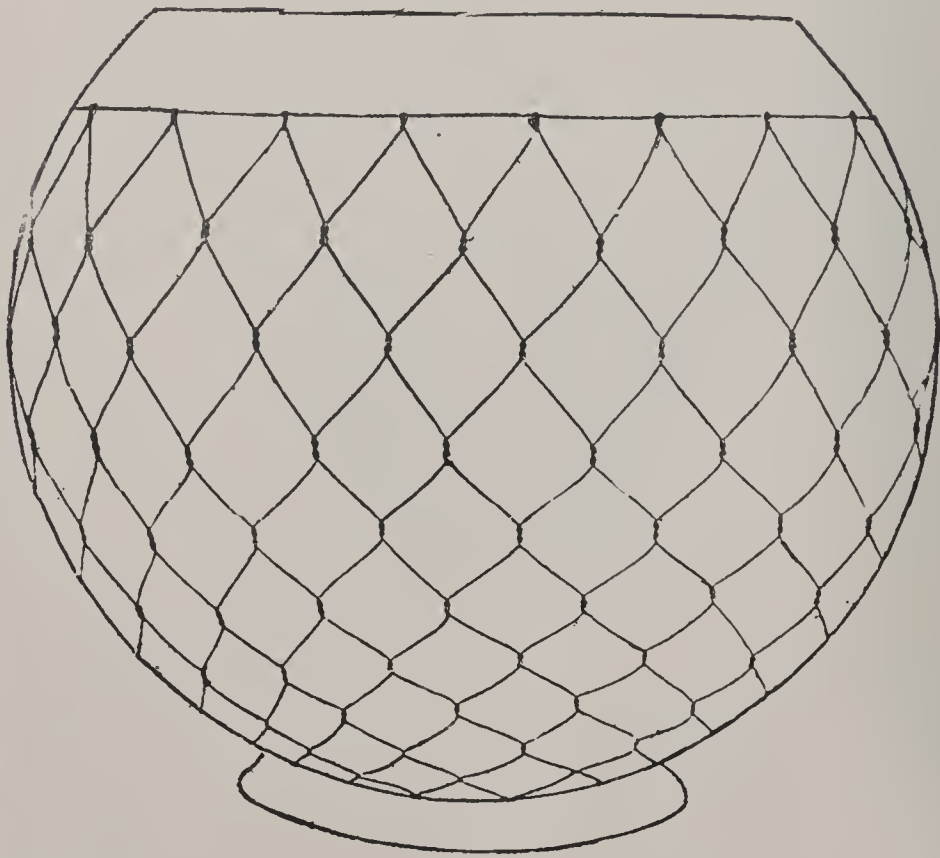
Height 11 in.; Diameter 9 in.

Bottom opening for 4½ inch holder.

Trade Word.		Diameter Holder		Price
		Inches.	Inches.	Per doz.
Balm.	Opal	10	3.....	\$11.00
Balmy.	Roughed	10	3... ..	11.00
Balsam.	Clear	10	3.....	9.00
Balustrade.	Opal	12	3.....	12.00
Bamboo.	Roughed	12	3.....	12.00
Bandage.	Clear	12	3.....	10.00
Bandana.	Opal	14	3.....	16.00
Bandbox.	Roughed	14	3.....	16.00
Bandit.	Clear	14	3.....	14.00
Baneful.	Opal	10	4.....	11.00
Banish.	Roughed	10	4.....	11.00
Banished.	Clear	10	4.....	9.00
Bankable.	Opal	12	4.....	12.00
Banker.	Roughed	12	4.....	12.00
Banking.	Clear	12	4.....	10.00
Bankrupt.	Opal	14	4.....	16.00
Banner.	Roughed	14	4.....	16.00
Banquet.	Clear	14	4.....	14.00
Bantam.	Opal	10	5.....	11.00
Banter.	Roughed	10	5.....	11.00
Bantling.	Clear	10	5.....	9.00
Baptism.	Opal	12	5.....	12.00
Baptize.	Roughed	12	5.....	12.00
Bar.	Clear	12	5.....	10.00
Barbarian.	Opal	14	5.....	16.00
Barbarous.	Roughed	14	5.....	16.00
Barber.	Clear	14	5.....	14.00

Trade Word.		Price.
Bard.	Opal.....per doz.,	\$11.00
Barebone.	Roughed .....	11.00
Barefaced.	Clear .....	9.00

GLOBE NETS.



Trade Word.	Price.
Bargain.....per doz.	\$5.00

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

CARBONS.

Trade Word.				Length.	Diameter.			Price per 1000.
Barge.	Low	Tension, Moulded,		12 inch,	$\frac{7}{16}$ inch,		plain . . . . .	\$27.00
Barley.	"	"	"	12 "	$\frac{7}{16}$ "		coppered . . . . .	27.00
Barmaid.	"	"	"	12 "	$\frac{1}{2}$ "		plain . . . . .	30.00
Barn.	"	"	"	12 "	$\frac{1}{2}$ "		coppered . . . . .	30.00
Barnacle.	High	"	"	12 "	$\frac{7}{16}$ "		plain . . . . .	27.00
Baron.	"	"	"	12 "	$\frac{7}{16}$ "		coppered . . . . .	27.00
Baronage.	"	"	"	12 "	$\frac{1}{2}$ "		plain . . . . .	30.00
Baroness.	"	"	"	12 "	$\frac{1}{2}$ "		coppered . . . . .	30.00
Baronet.	Low	"	Forced,	12 "	$\frac{7}{16}$ "		plain. . . . .	26.00
Baronetcy.	"	"	"	12 "	$\frac{7}{16}$ "		coppered . . . . .	26.00
Baronial.	"	"	"	12 "	$\frac{1}{2}$ "		plain. . . . .	29.00
Barony.	"	"	"	12 "	$\frac{1}{2}$ "		coppered. . . . .	29.00
Barrack.	High	"	"	12 "	$\frac{7}{16}$ "		plain. . . . .	26.00
Barren.	"	"	"	12 "	$\frac{7}{16}$ "		coppered. . . . .	26.00
Barrenness.	"	"	"	12 "	$\frac{1}{2}$ "		plain. . . . .	29.00
Barricade.	"	"	"	12 "	$\frac{1}{2}$ "		coppered. . . . .	29.00

CARBONS, IN PAIRS.

Trade Word.				Length of Positive Carbon.	Length of Negative Carbon.	Diameter.		Price per 1,000 pairs.
Barrister.	Low	Tension, Molded,		12 inch,	7 inch,	$\frac{7}{16}$ inch,	plain . . . . .	\$40.00
Barrow.	"	"	"	12 "	7 "	$\frac{7}{16}$ "	coppered. . . . .	40.00
Bartered.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	plain . . . . .	45.00
Basalt.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	coppered. . . . .	45.00
Basely.	High	"	"	12 "	7 "	$\frac{7}{16}$ "	plain . . . . .	40.00
Basement.	"	"	"	12 "	7 "	$\frac{7}{16}$ "	coppered. . . . .	40.00
Baseness.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	plain . . . . .	45.00
Bashful.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	coppered. . . . .	45.00
Basilisk.	Low	"	Forced,	12 "	7 "	$\frac{7}{16}$ "	plain . . . . .	38.00
Basin.	"	"	"	12 "	7 "	$\frac{7}{16}$ "	coppered. . . . .	38.00
Basket.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	plain. . . . .	43.00
Baste.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	coppered. . . . .	43.00
Bastion.	High	"	"	12 "	7 "	$\frac{7}{16}$ "	plain . . . . .	38.00
Batch.	"	"	"	12 "	7 "	$\frac{7}{16}$ "	coppered. . . . .	38.00
Bathe.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	plain . . . . .	43.00
Batten.	"	"	"	12 "	7 "	$\frac{1}{2}$ "	coppered. . . . .	43.00

Other sizes furnished on special order.

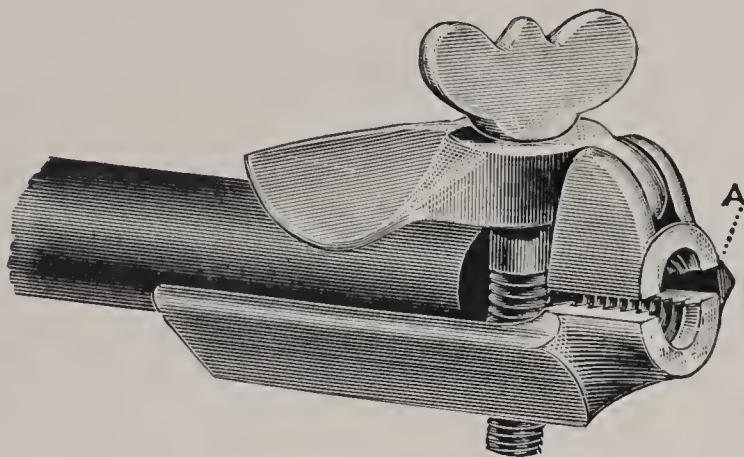
Hard Carbons are used for low tension, and Soft Carbons for high tension systems.

For Explanation of Trade Word see page 4.



# ARC LIGHT SUPPLIES.

## UNIVERSAL CARBON HOLDERS.



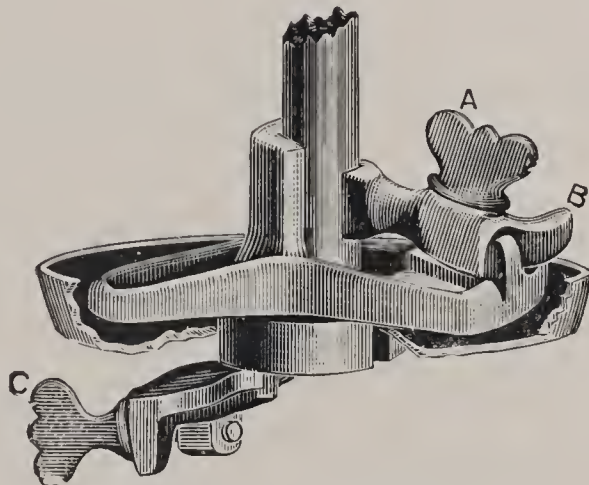
UPPER HOLDER.

Will hold either  $\frac{7}{16}$  or  $\frac{1}{2}$  inch carbons firmly, and not allow them to slip by. Especially suitable for Brush or Thomson-Houston Lamps. The slot A allows the holder to adjust itself to any variation in screw thread on carbon rod, and the act of clamping the carbon tightens the holder on the rod, preventing all lateral motion of carbon, and the carbon cannot be shaken from the rod by the wind.

Trade Word.

Price.

Battle.....each, \$0.70



LOWER HOLDER.

For Thomson-Houston single or double Carbon Lamps. It will hold the carbon firmly in place with a very slight pressure of the screw A, as the lever B acts like a cam and wedges the carbon when it drops or is pushed down. The thread of the clamping screw A is protected, so that the melted copper from the carbon cannot clog it. The bearing of the body of the holder is large, and, therefore, the carbon will always be upright. The screw C is on the under side of the dust-pan of the lamp, and protected from dust and melted copper from the carbon, and can easily be gotten at and the holder adjusted without removing the globe.

Trade Word.

Price.

Bawled.....each, \$0.80

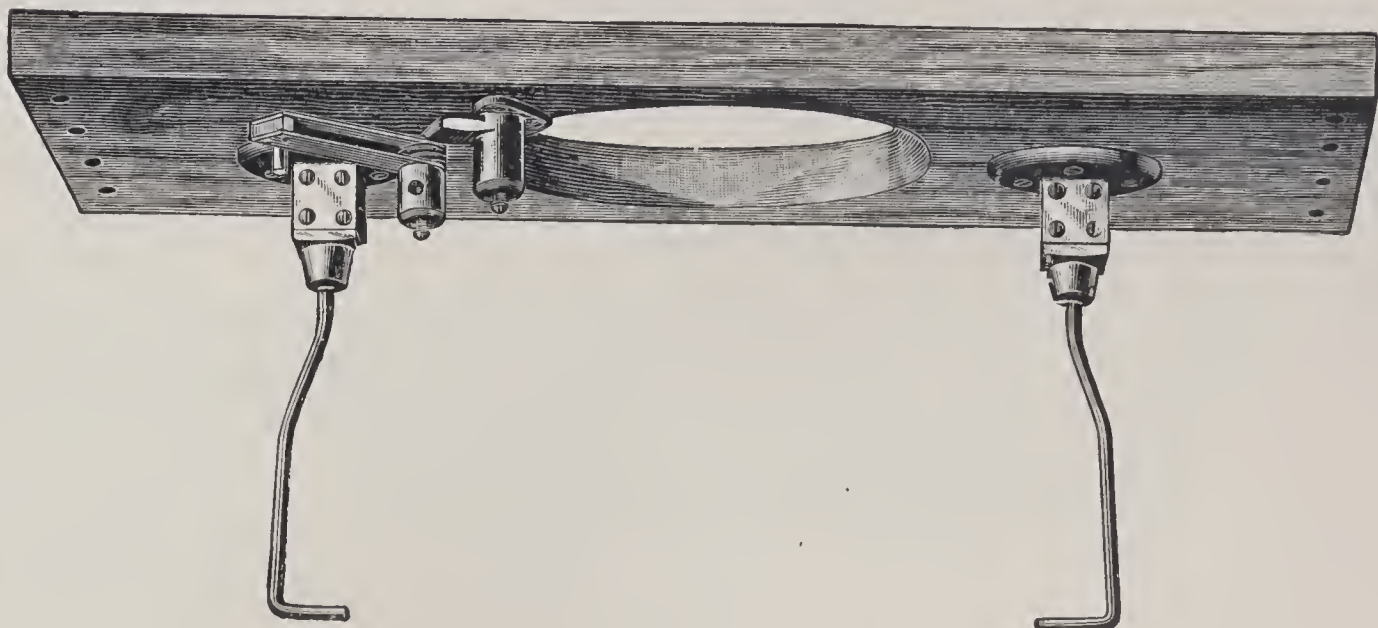
For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

LAMP SUSPENDING BOARD.

WITH SWITCH FOR HOOD.

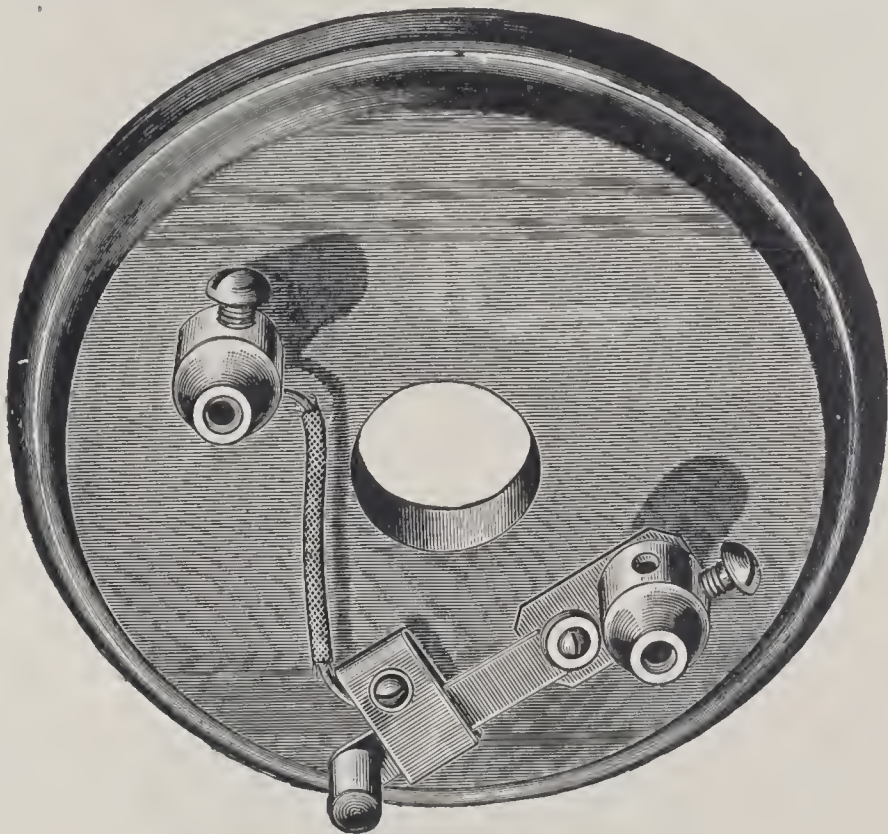


Trade Word.  
Beach. .... Price.  
\$6.00

CEILING SUSPENDING BOARDS.

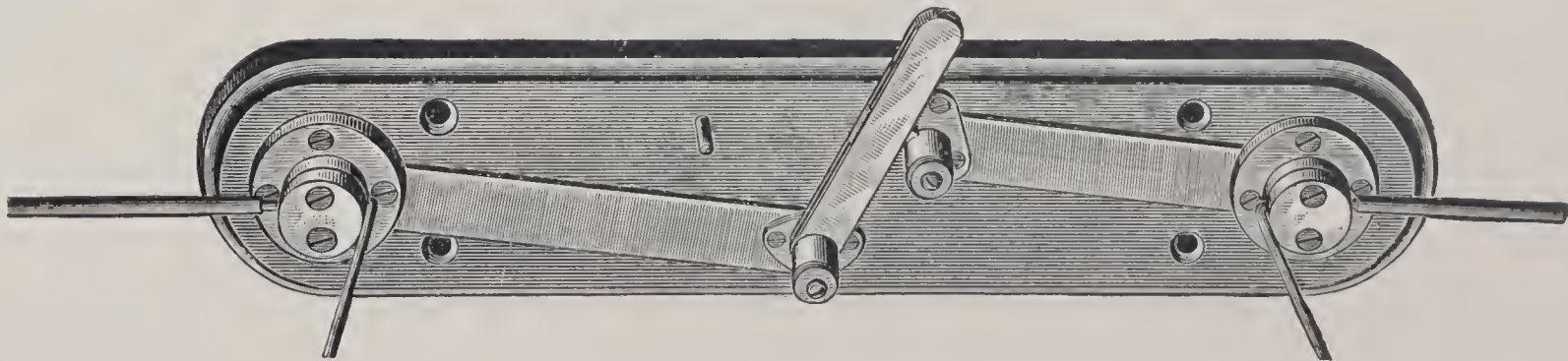
These Suspending Boards are made of hard wood, neatly finished. They are a great convenience when lamps are used inside of buildings.

WITH HAND CUT OUTS, FOR INSIDE FRAME LAMPS.



Trade Word.  
Beacon .... Price.  
\$4.00

FOR OUTSIDE FRAME LAMPS.



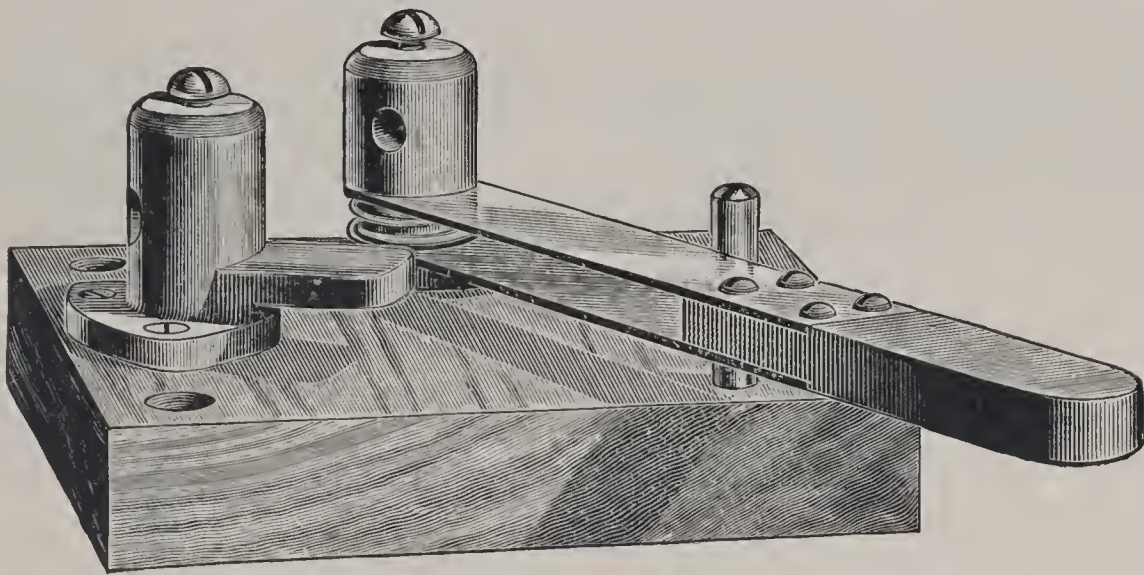
Trade Word.  
Beadle. .... Price.  
\$6.00

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

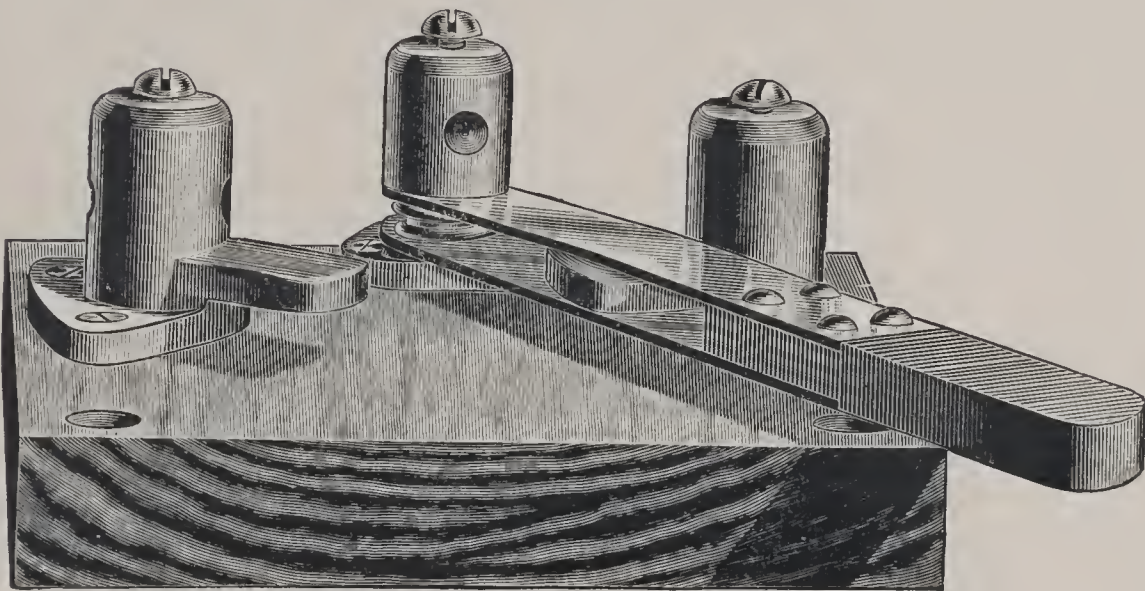
ONE-POINT LINE SWITCH.



ON FINELY FINISHED CHERRY BASE.

Trade Word.	Price.
Beaker.....	\$4.00

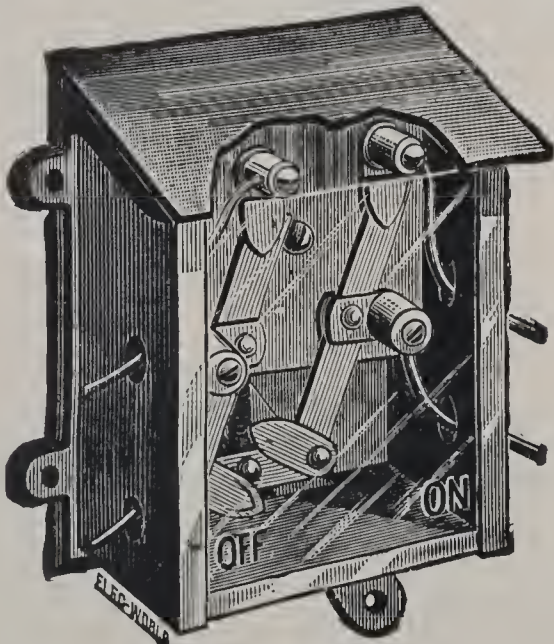
TWO-POINT LINE SWITCH.



ON FINELY FINISHED CHERRY BASE.

Trade Word.	Price.
Beam.....	\$5.00

CLEVELAND ARC CUT OUT.



Iron Case, Wood Sides, Glass Front, Double Contacts and Quick Action. Removable Handle.

Trade Word.	Price.
Beaming.....	\$6.00

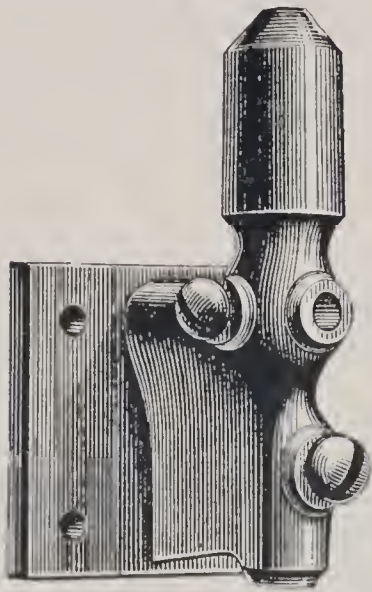
For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ARC LIGHT SWITCH PLUGS AND SOCKETS.

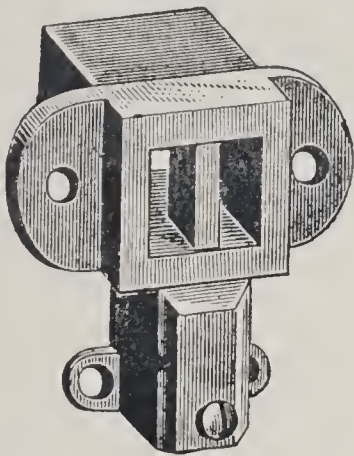
MALE ARC SOCKET.  
(Single.)



Trade Word. Price.  
Beamless. Single, each, \$1.50  
Beamlet. Double, “ 2.50

The Double Arc Socket has a second pin to receive another plug at the same time to enable the second connection to be established before the first is broken.

VICTOR ARC SOCKET.  
(Single.)



Trade Word. Price.  
Beamy. Single...each, \$1.50  
Bean. Double.. “ 2.80

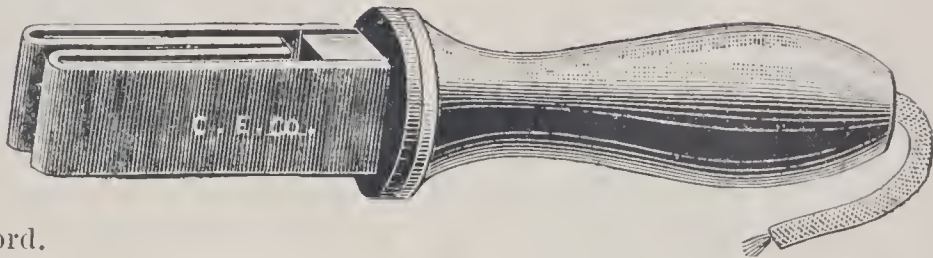
The Double Victor Socket has a second receptacle to receive another plug at the same time to enable the second connection to be established before the first is broken.

FEMALE ARC PLUG.



Trade Word. Price.  
Beamtree .....each, \$2.00

VICTOR ARC PLUG.



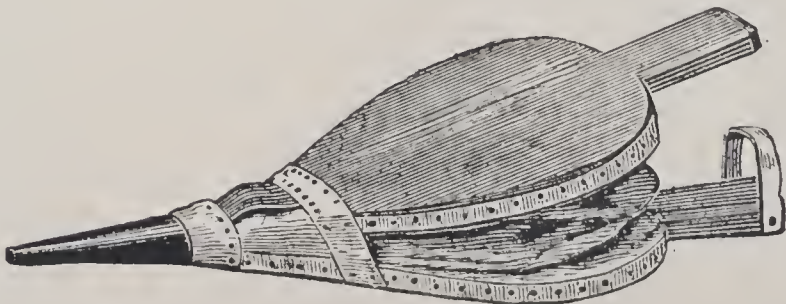
Trade Word. Price.  
Beancaper.....each, \$2.50

THE VICTOR ARC PLUG AND SOCKET,

(Patent Pending)

Is the very best in use, both for great breadth and security of contact, and quickness of change. It has stood the test of extended service in the largest stations, and meets unqualified approval of experts.

ARMATURE BELLOWS.



Trade Word.	Size.	Price.
Beancod.	8 in.	\$1.00
Beanfly.	10 “	1.25
Beangoose.	12 “	1.50

SMOKED GLASS, EYE GLASSES AND SPECTACLES.

For Lamp Tender's Use.

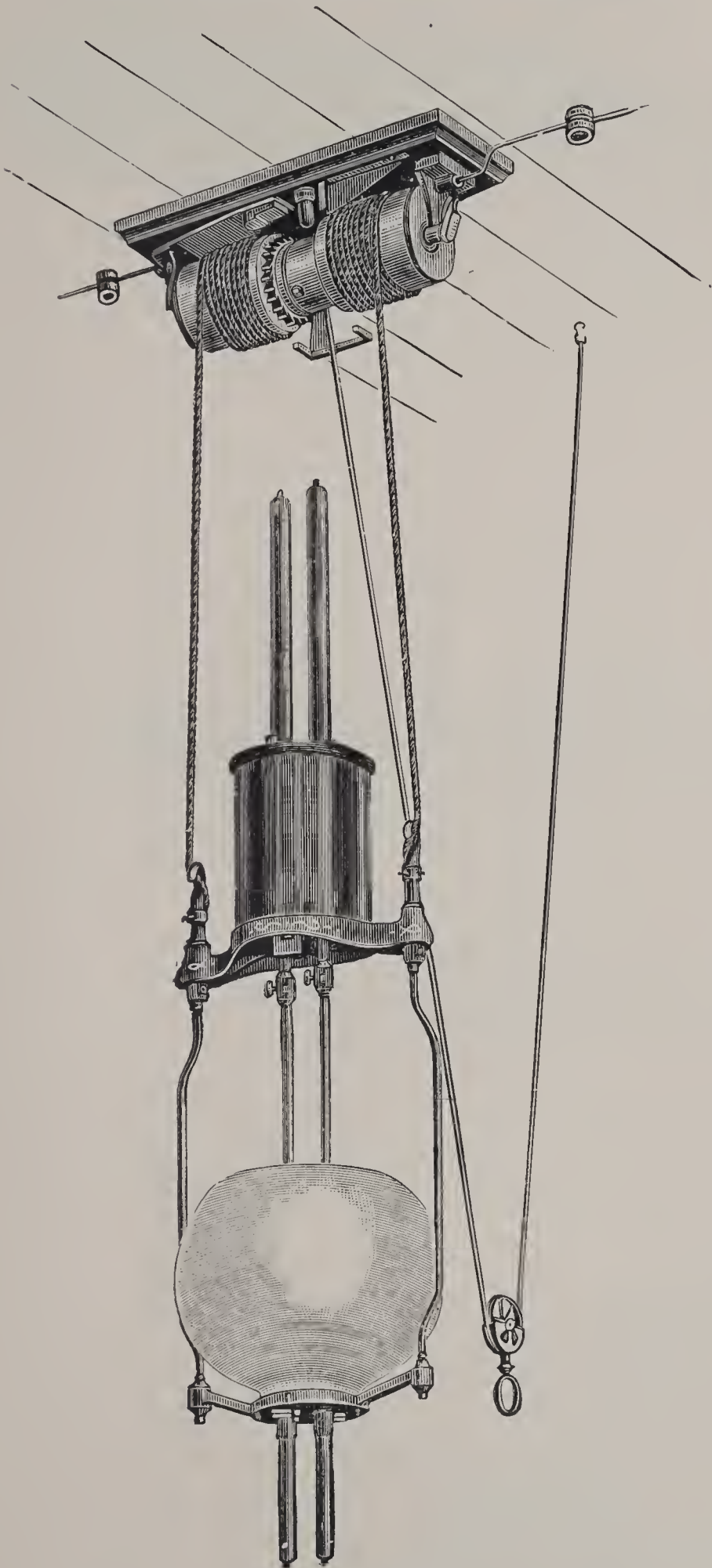
Trade Word.		Price
Bear.	Eye Glasses.....	per pair, \$1.00
Bears.	Spectacles .....	“ 1.00

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ADJUSTABLE LAMP HANGER.



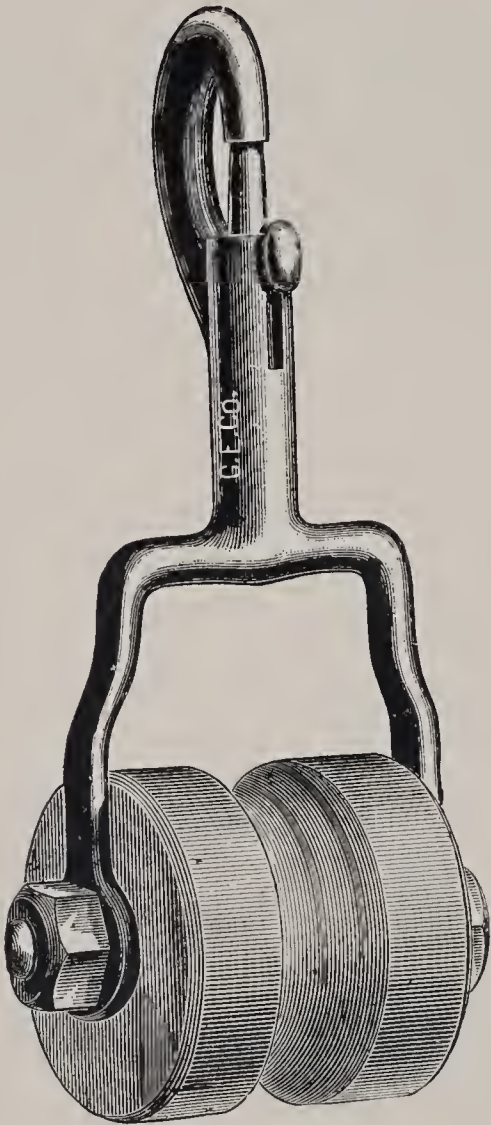
PRICE, \$15.00

For convenience in raising and lowering lamps, we recommend the above hanger, which does away with unsightly counterweights, and enables the attendant to raise and lower the lamp as desired.

Trade Word.	Price.
Bearable . . . . .	each, \$15.00

FLETCHER'S LAMP HANGER.

For Suspending and Insulating Arc Lamps from Cranes, Span Wires, Mast Arms, &c., &c.



Trade Word.	Price.
Beard . . . . .	each, \$1.00

ARC LAMP CROSS ARM.



For Suspending Arc Lamp.

Trade Word.	Price.
Beardless . . . . .	\$0.30

For Explanation of Trade Word see page 4.

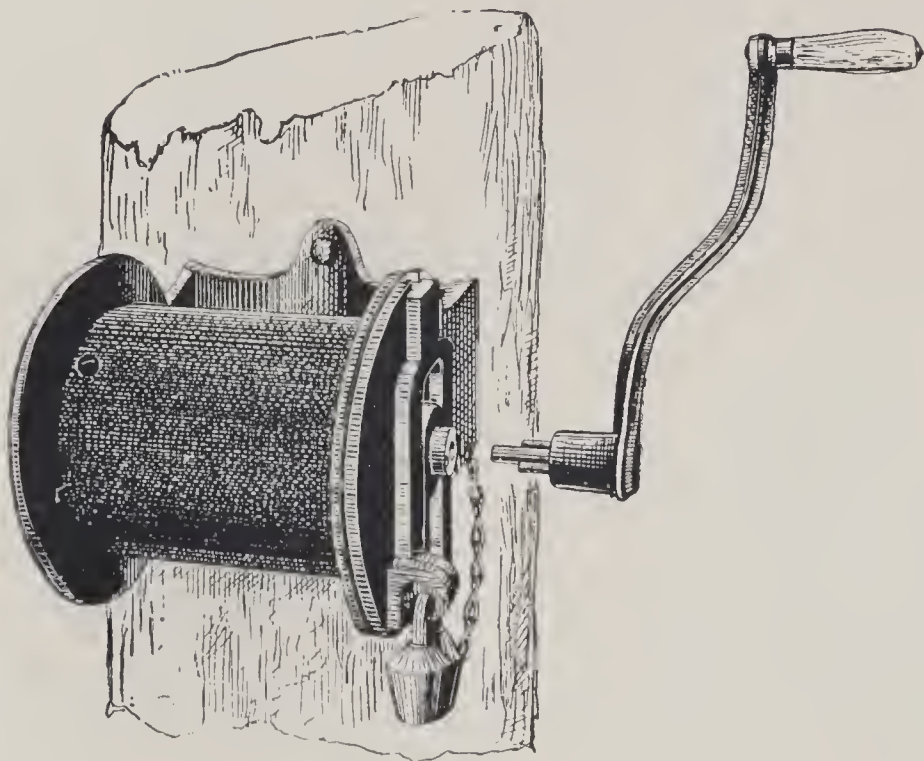


ARC LIGHT SUPPLIES.

ARC WINDLASSES.

For raising and lowering Arc Lamps when suspended from mast arms or suspension cables.

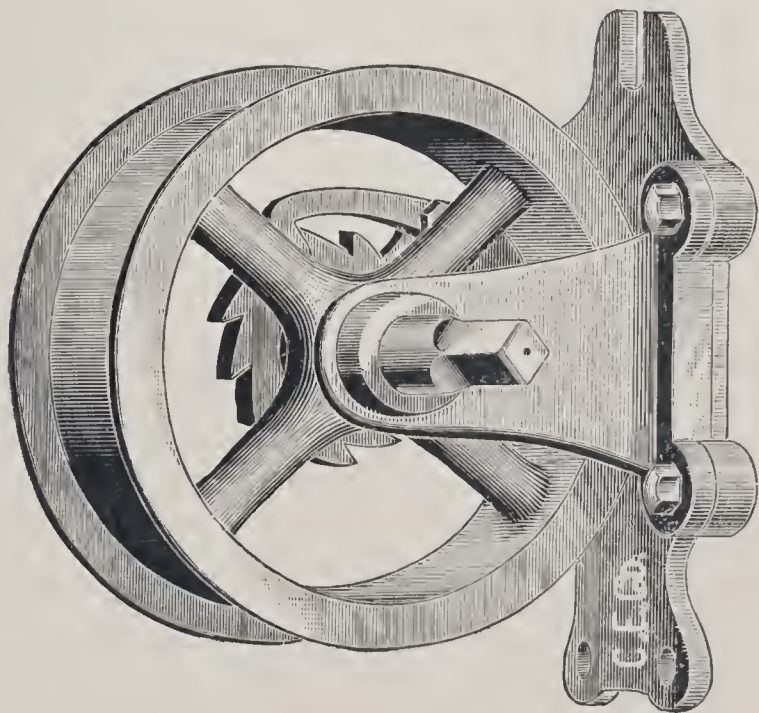
THE MORRIS WINDLASS.



Fits any pole, and has attachment for locking in position.

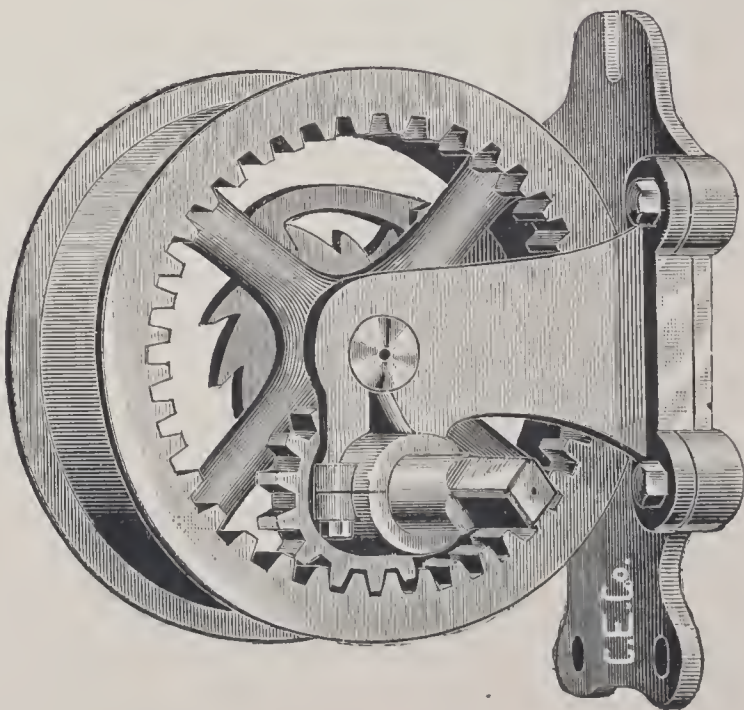
Trade Word.		Price.
Bearish.	Without Crank.....each,	\$6.00
Bearishness.	Crank alone.....“	2.00

BRADY'S PATENT WINDLASSES.



PLAIN WINDLASS.

Trade Word.	Price.
Beastly.....	each, \$6.00



GEAR WINDLASS.

Trade Word.	Price.
Beaten.....	each, \$9.00

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

ABSOLUTE PROTECTION.

THE CENTRAL SPARK ARRESTER.

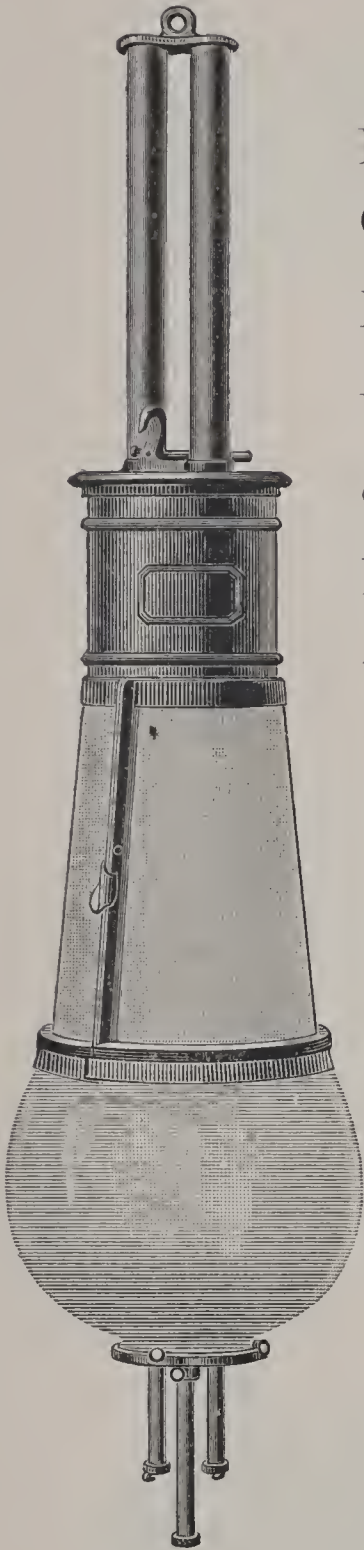


Fig. 2.

The accompanying cuts illustrate a device to prevent the dropping of sparks from Arc Lamps. Complaint has frequently been made that sparks have fallen and damaged or destroyed goods over which the lamp was suspended, and in many cases the use of Arc Lamps for indoor lighting has been discontinued for this reason. The Arrester rests upon the top of the globe, and reaches up to and around the cylinder of the lamp, inclosing all the intervening space, and thus prevents the escape of the heated particles of carbon. The device is made to fit any inside frame lamp, and all outside frame lamps where the cylinder is suspended from the inside of the top of the frame.

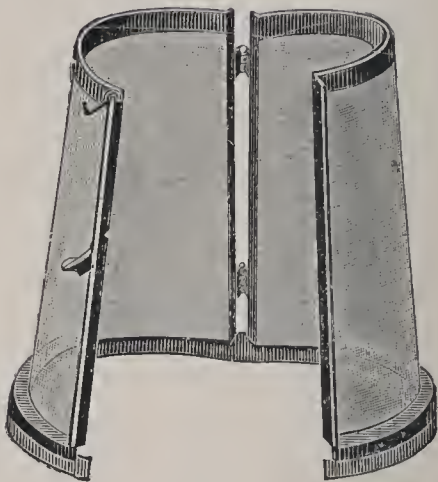


Fig. 1.

Fig. 1 shows the Arrester removed while the lamp is being trimmed. Fig. 2 shows the Arrester in position upon the lamp.

A rubber flange or apron fits tightly around the top of the globe, and the body of the Arrester being of fine wire cloth, affords a free escape for heat, and shuts off none of the rays of light.

Height.....	12 inches.
Diameter at Bottom.....	10 “
Diameter at Top.....	6¾ “
Trade Word.	Price.
Beautify.....	\$6.00

In ordering these Spark Arresters, please state what lamp they are intended to fit. The above style is kept in stock as a standard. Any other style can be made on short notice.

For Explanation of Trade Word see page 4.

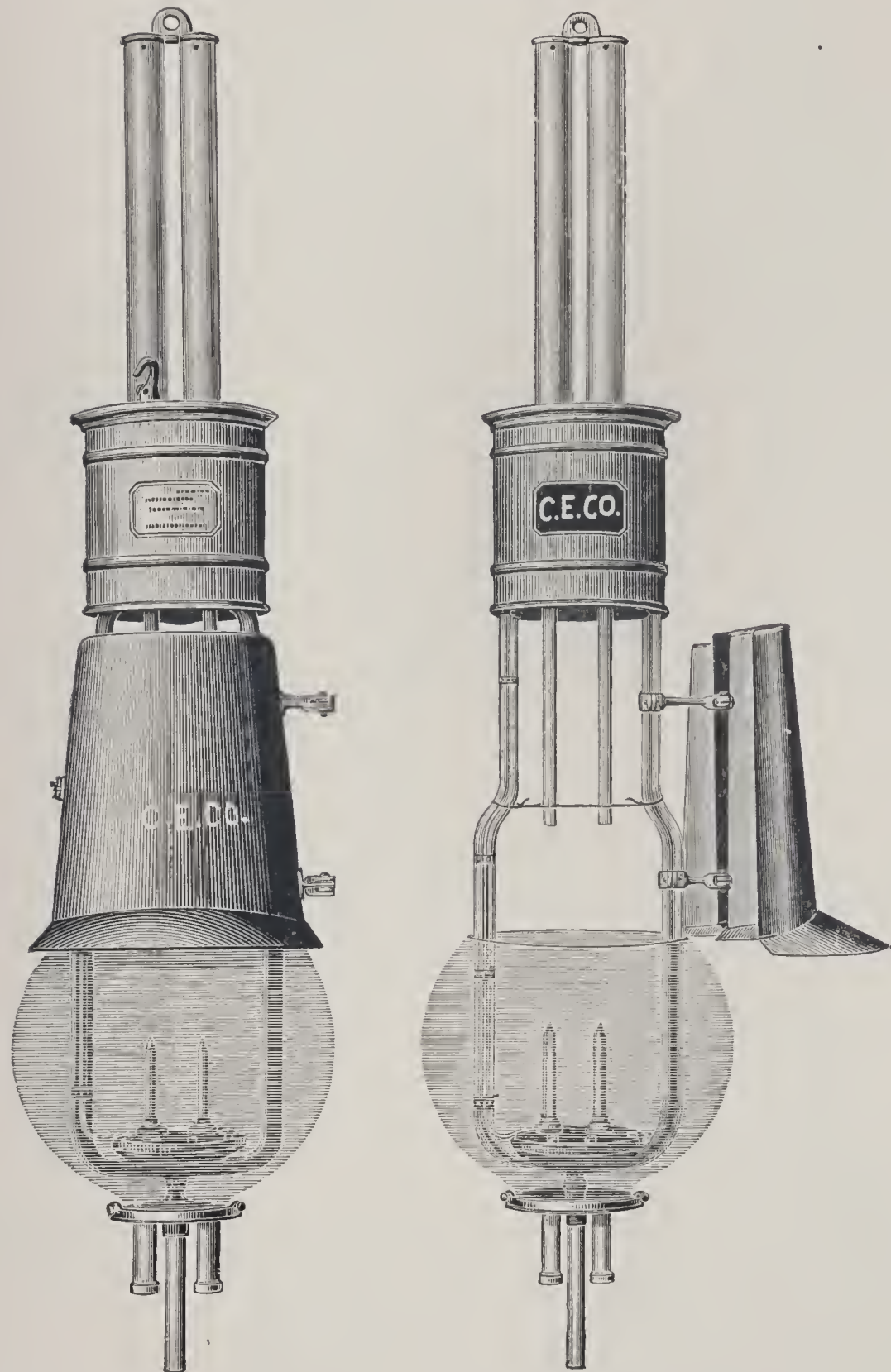


ARC LIGHT SUPPLIES.

SLEET AND STORM GUARDS FOR ARC LAMPS.

THE BRADY STORM GUARD.

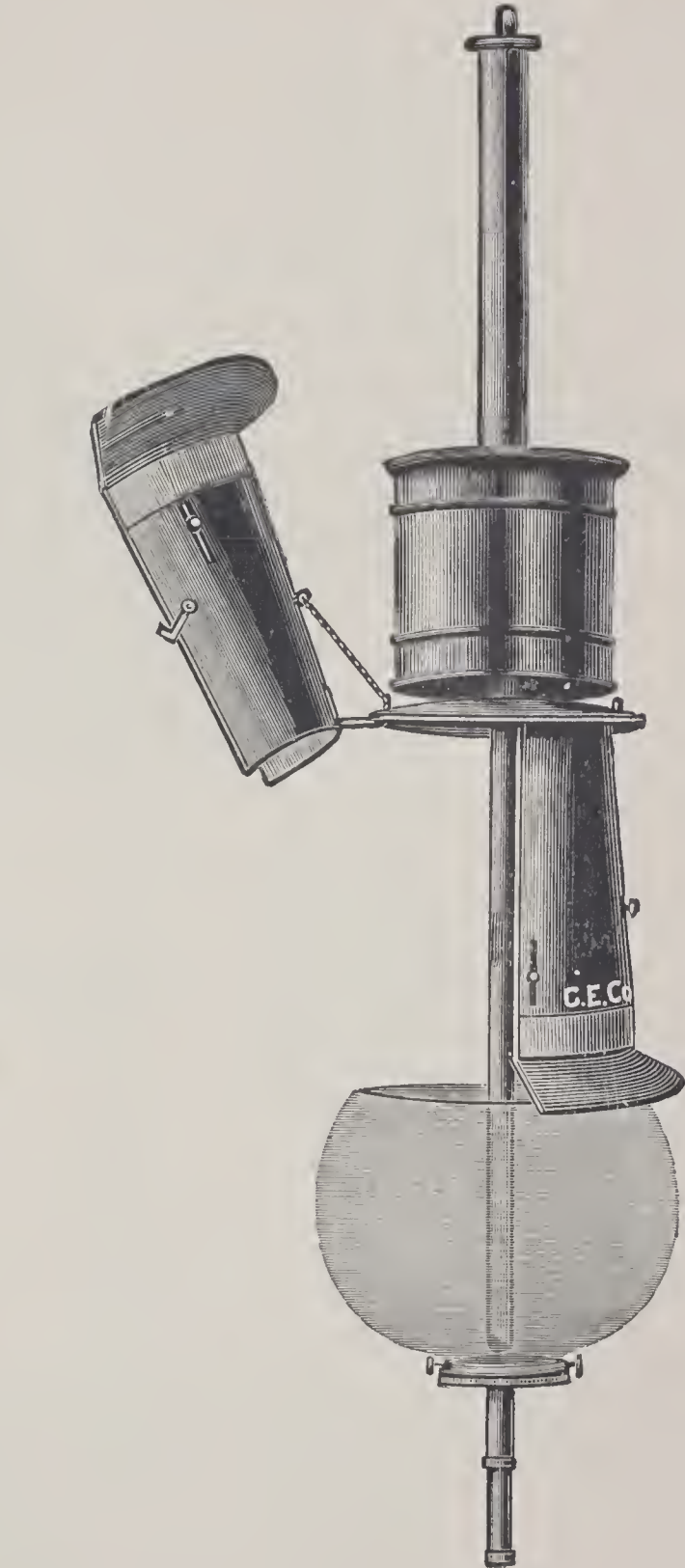
THE ROBERTSON STORM GUARD.



This cut shows guard closed. This cut shows guard thrown aside for trimming.

These cuts show guards designed especially for Thomson-Houston Lamps, but they are made to fit any lamp.

Trade Word.	Price.
Beatitude.....	per doz. \$45.00



This guard is being used with very satisfactory results where sleet and snow storms prevail. It can be lengthened so as to be adapted to any lamp. The cut shows one-half of the guard thrown up to allow the trimming of the lamp, and also shows the bottom partly "extended." Made of heavy galvanized sheet iron and japanned.

Trade Word.	Price.
Beautiful.....	per doz. \$50.00

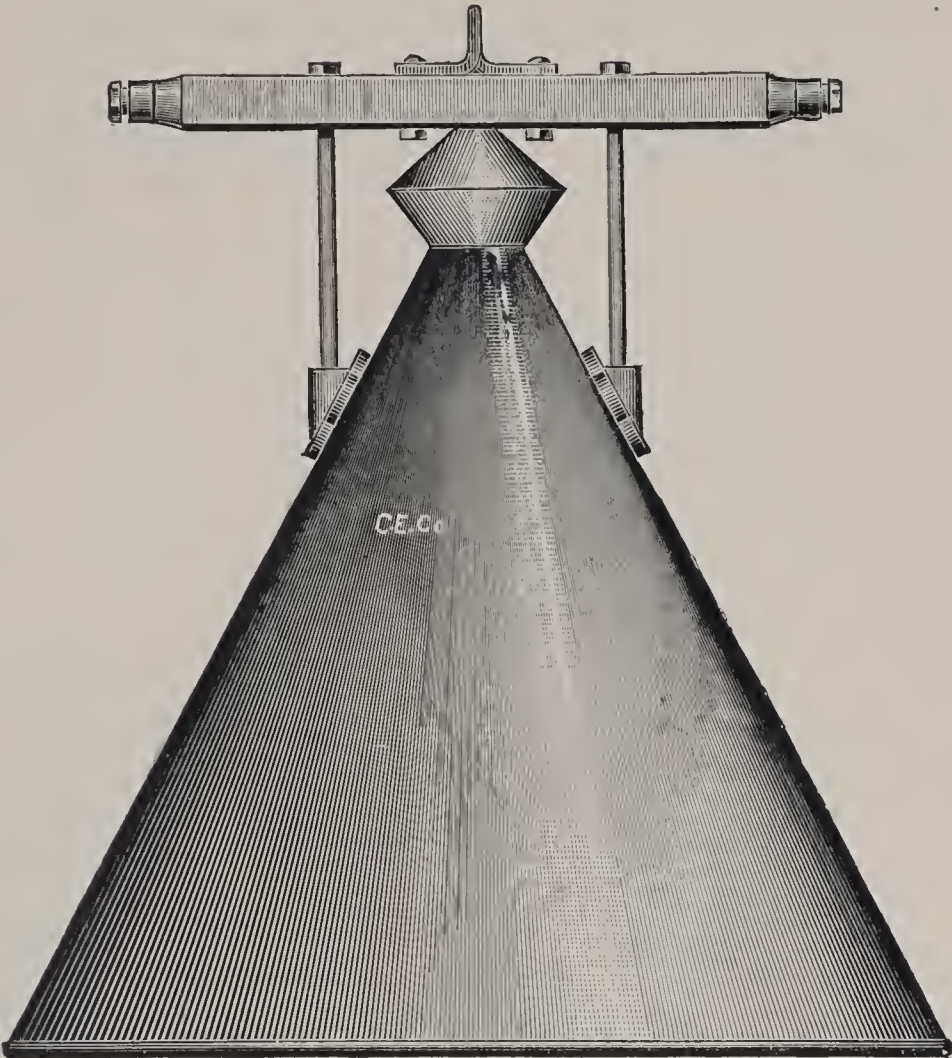
For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

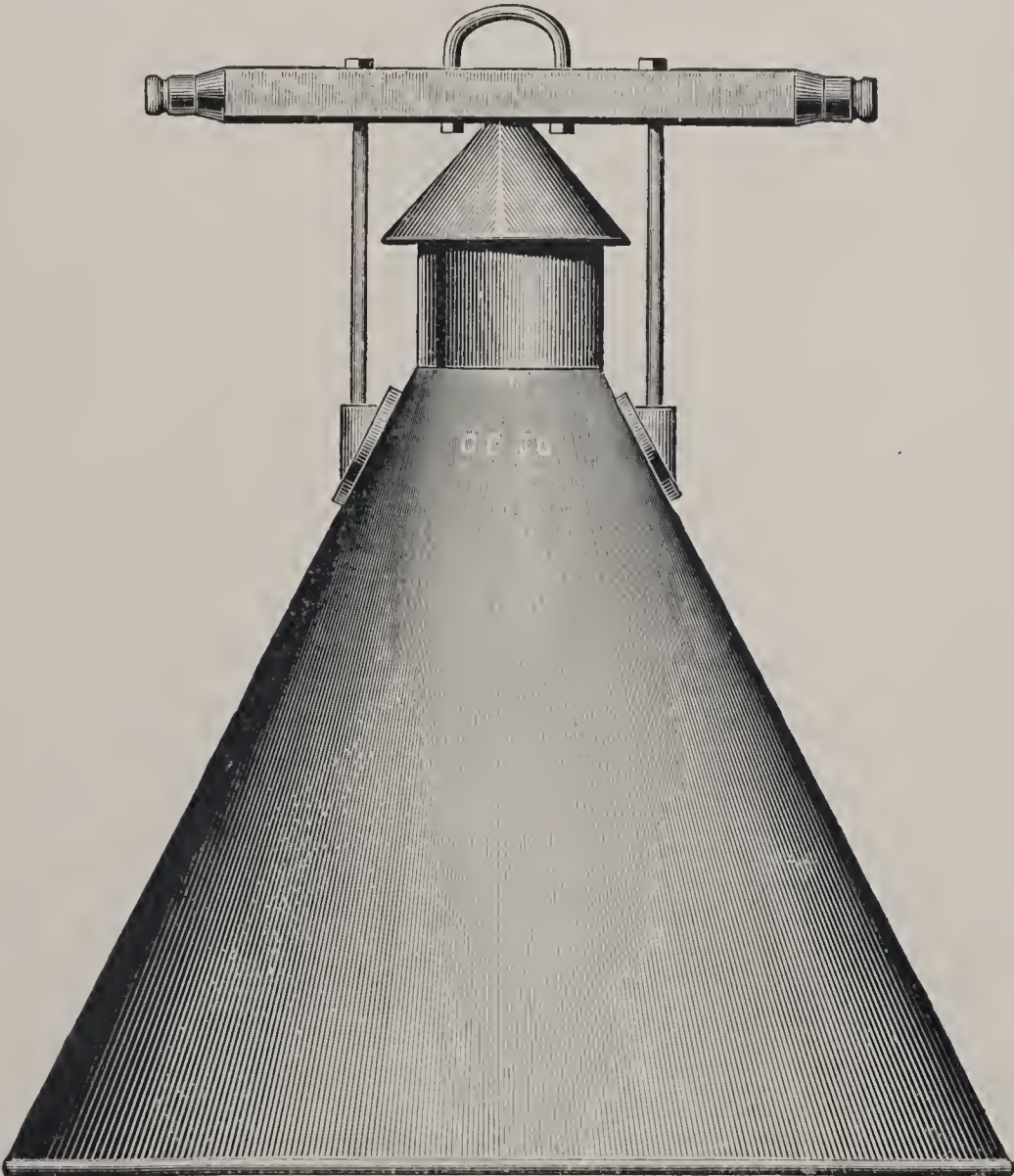
ARC LAMP HOODS FOR ANY SYSTEM.

Complete with Cross-arm, Porcelain Knobs and Hanging board. Made of heavy tin japanned on outside and painted white inside.



Trade Word.		Price.
Beauty .....	each,	\$6.50

Same as above, with extension for lamps with long stacks.



Trade Word.		Price.
Beaver .....	each,	\$6.50

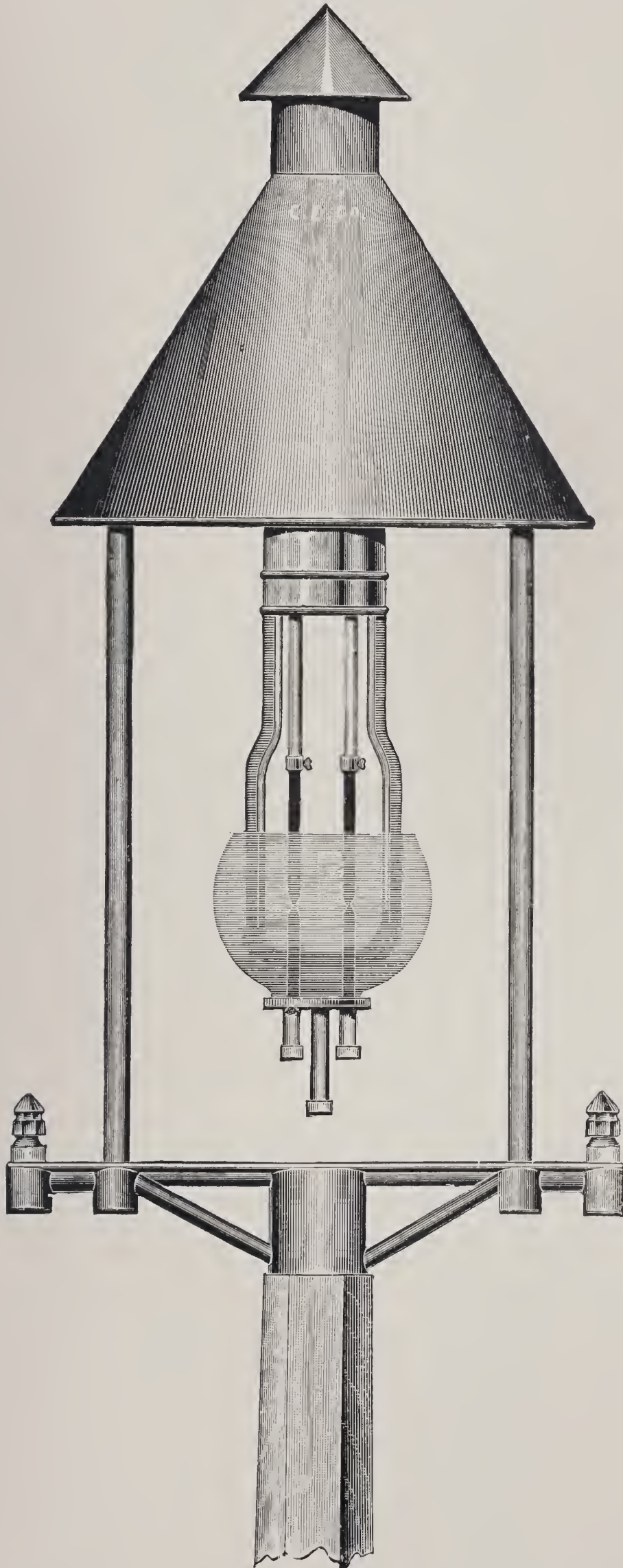
For Explanation of Trade Word see page 4.



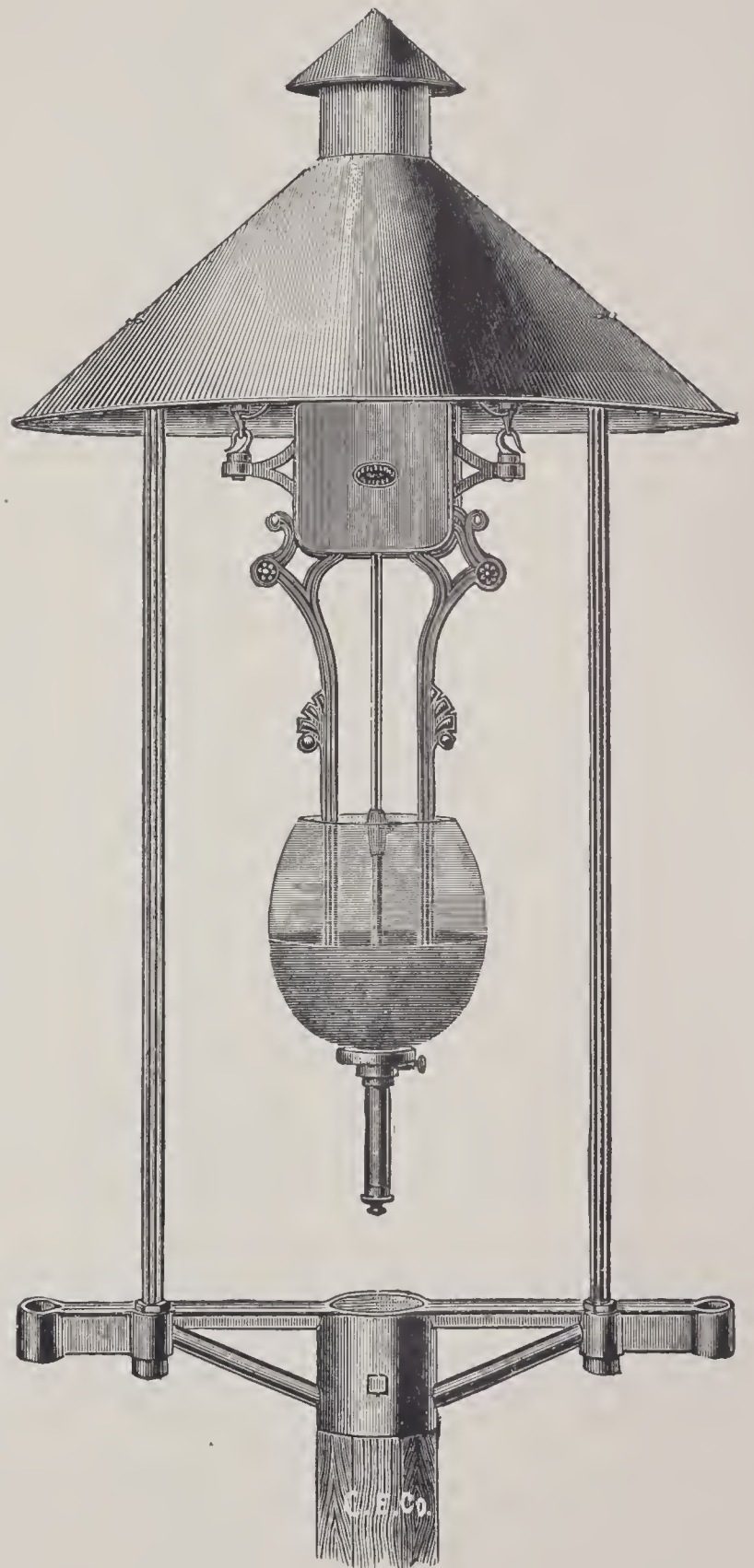
# ARC LIGHT SUPPLIES.

## POLE HOODS FOR STREET ARC LAMPS.

Complete with Hood, Frame, Lower Cross-Arm, with receptacles for Removable Pins.  
Designed to be placed on top of pole. Very strong and practical.



Trade Word.	Price.
Becalm . . . . .	\$12.00

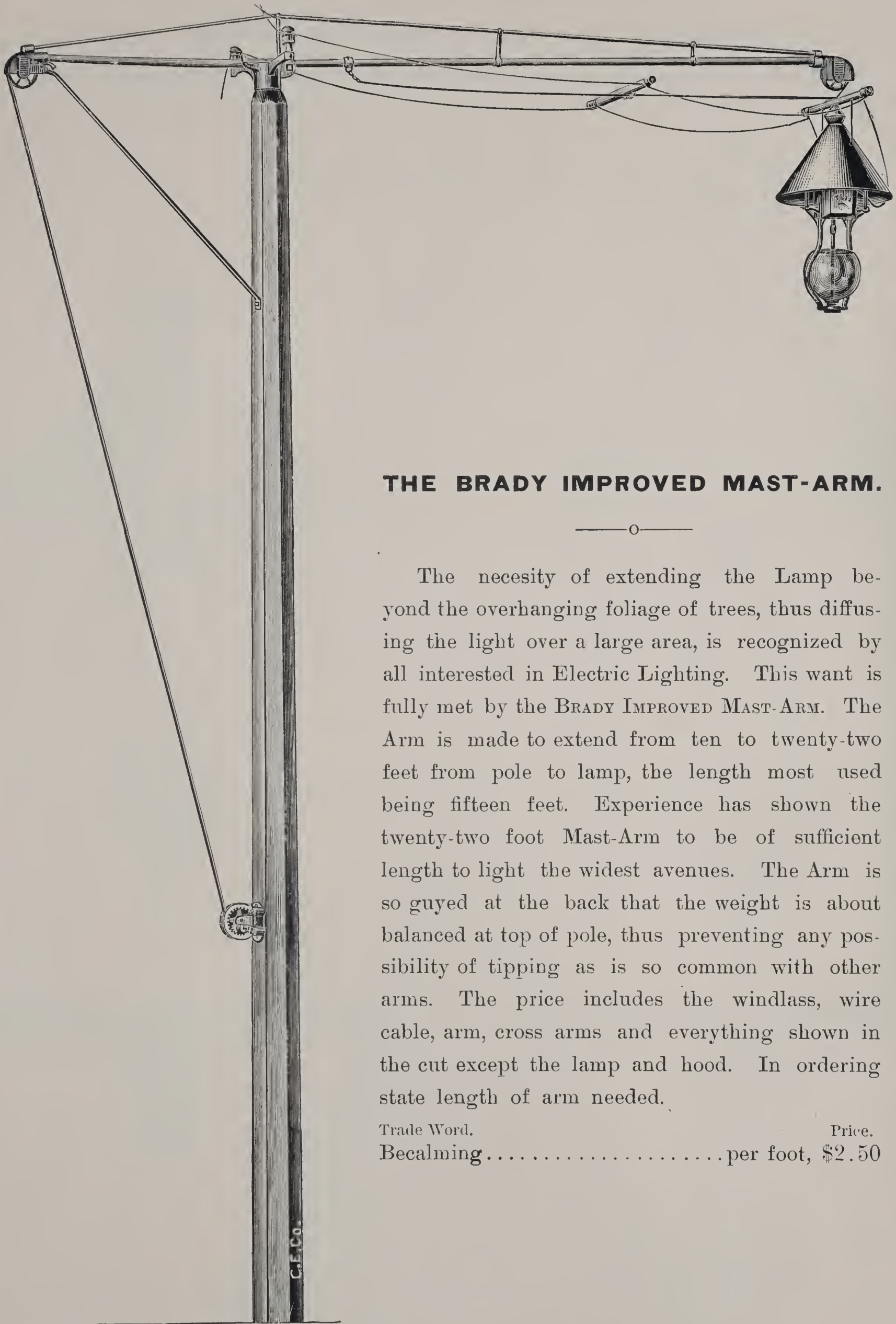


Trade Word.	Price.
Becalmed . . . . .	\$12.00

For Explanation of Trade Word see page 4.



## ARC LIGHT SUPPLIES.



### THE BRADY IMPROVED MAST-ARM.

The necessity of extending the Lamp beyond the overhanging foliage of trees, thus diffusing the light over a large area, is recognized by all interested in Electric Lighting. This want is fully met by the BRADY IMPROVED MAST-ARM. The Arm is made to extend from ten to twenty-two feet from pole to lamp, the length most used being fifteen feet. Experience has shown the twenty-two foot Mast-Arm to be of sufficient length to light the widest avenues. The Arm is so guyed at the back that the weight is about balanced at top of pole, thus preventing any possibility of tipping as is so common with other arms. The price includes the windlass, wire cable, arm, cross arms and everything shown in the cut except the lamp and hood. In ordering state length of arm needed.

Trade Word.

Price.

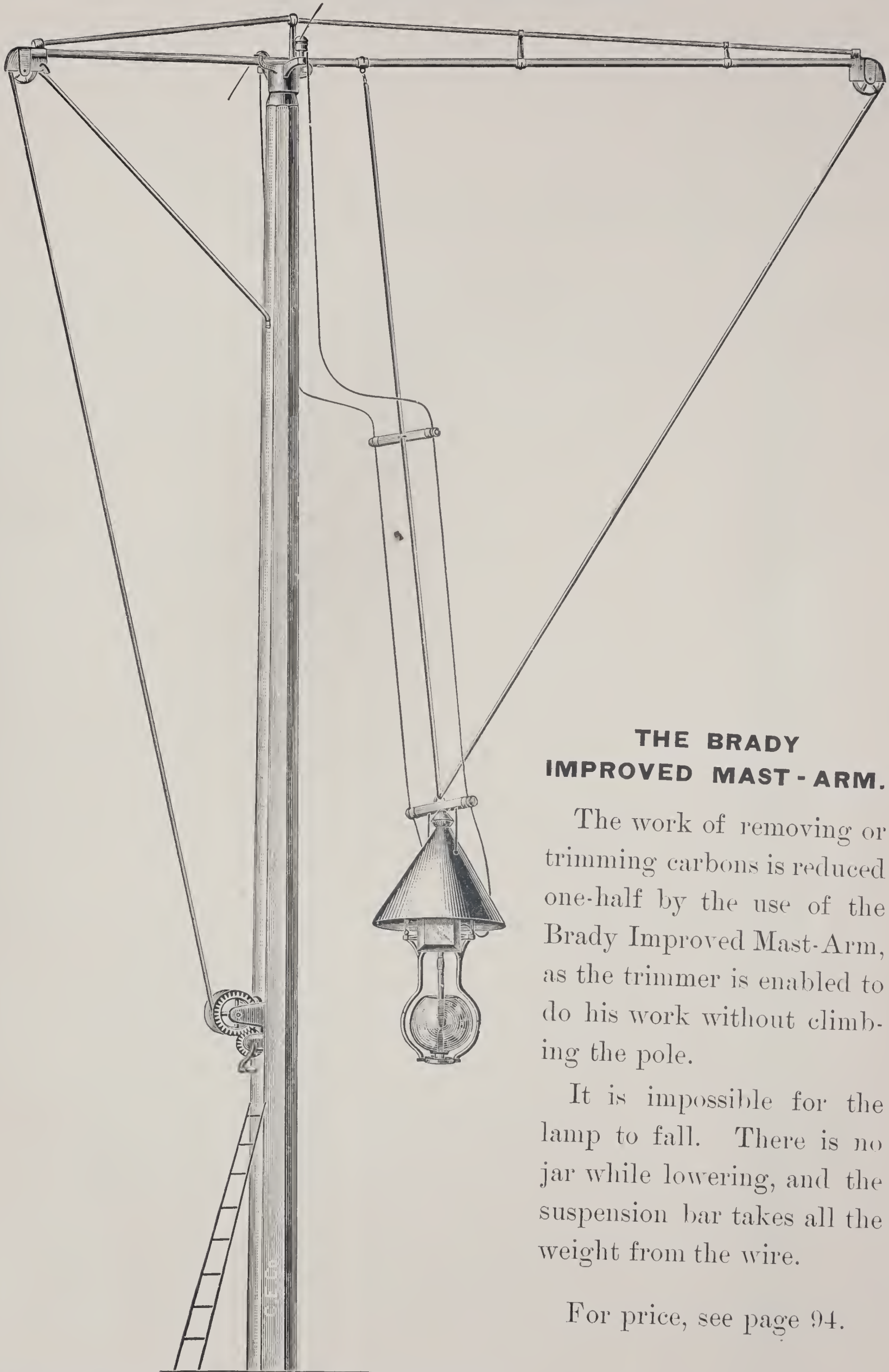
Becalming.....per foot, \$2.50

MAST-ARM WITH LAMP IN POSITION.

For Explanation of Trade Word see page 4.



## ARC LIGHT SUPPLIES.

**THE BRADY  
IMPROVED MAST - ARM.**

The work of removing or trimming carbons is reduced one-half by the use of the Brady Improved Mast-Arm, as the trimmer is enabled to do his work without climbing the pole.

It is impossible for the lamp to fall. There is no jar while lowering, and the suspension bar takes all the weight from the wire.

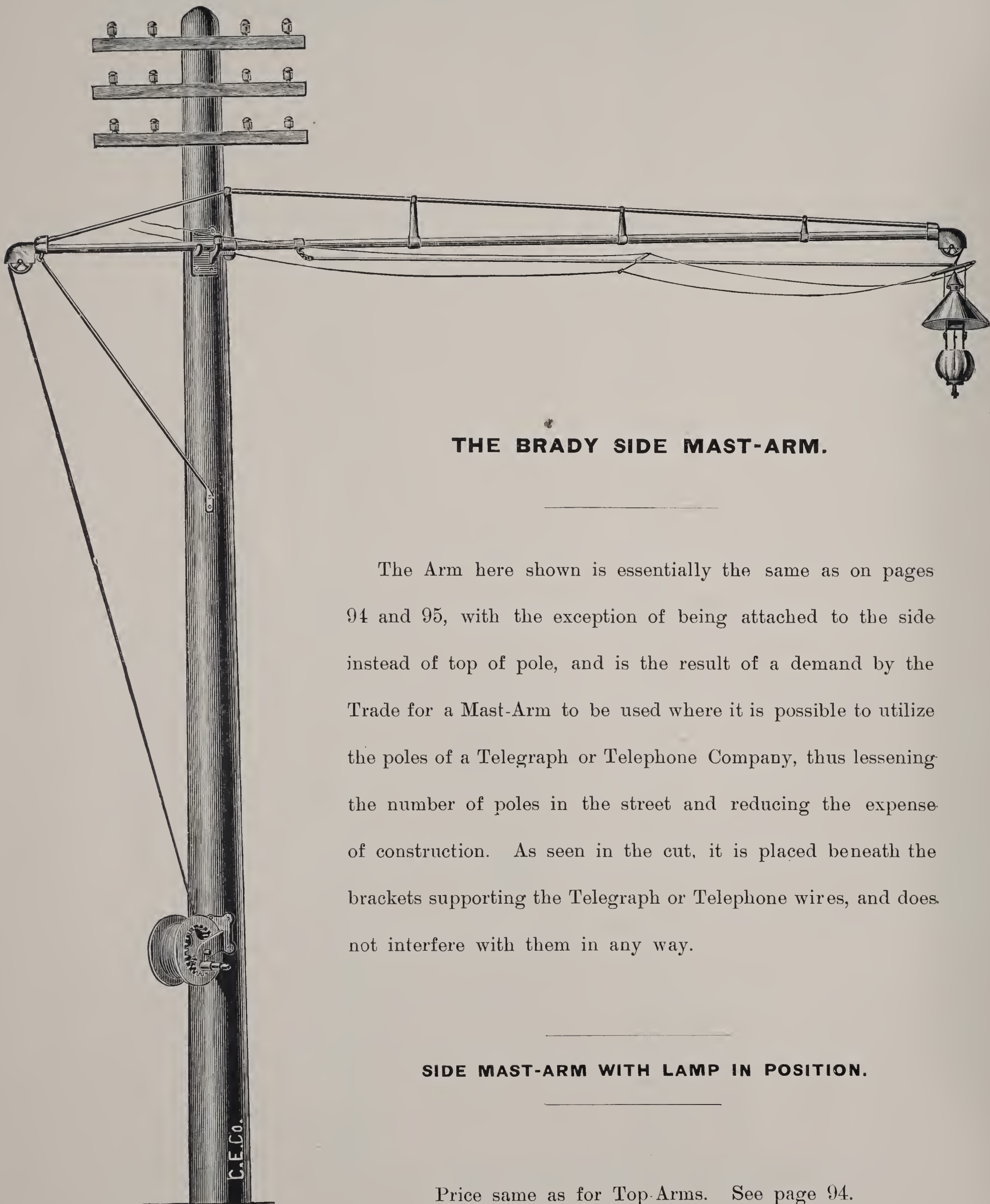
For price, see page 94.

**MAST-ARM WITH LAMP LOWERED, FOR REMOVING  
OR TRIMMING CARBONS.**

**For Explanation of Trade Word see page 4.**



## ARC LIGHT SUPPLIES.



**THE BRADY SIDE MAST-ARM.**

The Arm here shown is essentially the same as on pages 94 and 95, with the exception of being attached to the side instead of top of pole, and is the result of a demand by the Trade for a Mast-Arm to be used where it is possible to utilize the poles of a Telegraph or Telephone Company, thus lessening the number of poles in the street and reducing the expense of construction. As seen in the cut, it is placed beneath the brackets supporting the Telegraph or Telephone wires, and does not interfere with them in any way.

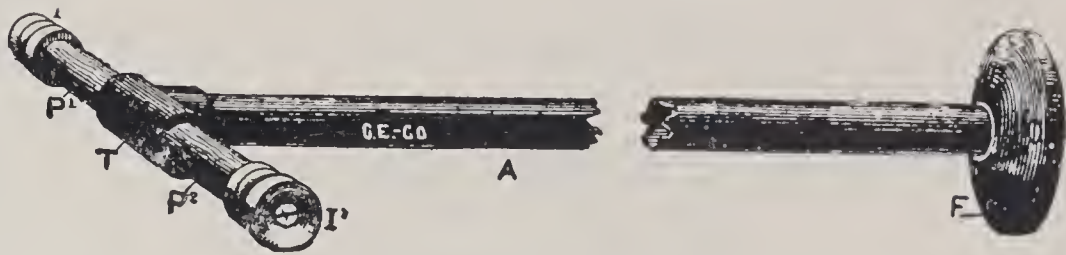
**SIDE MAST-ARM WITH LAMP IN POSITION.**

Price same as for Top-Arms. See page 94.



ARC LIGHT SUPPLIES.

ARC LAMP OUTRIGGERS.



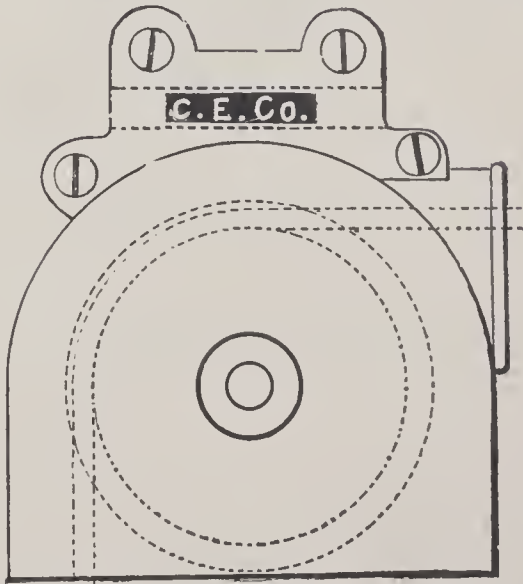
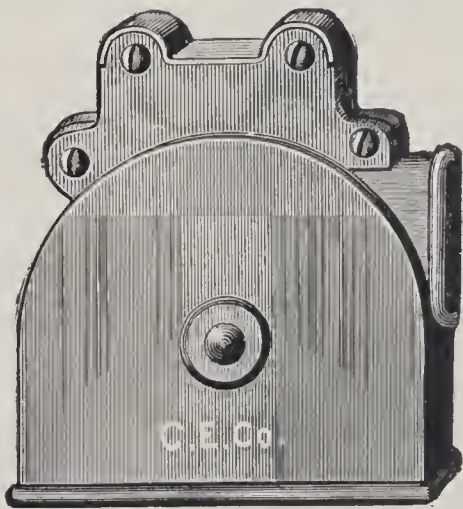
The arm (A) is made of galvanized iron, with either flange base (see cut), spear base (pointed to enter wood or interstices of masonry work) or forked base (to fit corners of edifice), all at same price. Please specify style of base wanted.

Trade Word.		Price.
Becalmer.	Arc Lamp Outriggers, complete, as per cut, 4 feet long .....	\$3.50
Because.	“ “ “ “ “ “ 6 “ “ .....	4.00
Bechance.	“ “ “ “ “ “ 8 “ “ .....	4.50

The above are the standard sizes, but longer outriggers, up to 15 feet, will be furnished at 15 cents additional for each additional foot.

Beckon.	Outrigger Pins (see P in cut).....	\$0.20
Becloud.	“ Insulators (see I in cut, with screws).....	.10
Become.	“ T sleeves (see T in cut).....	1.00
Becoming.	“ Flange base (see F in cut).....	1.00
Bedding.	“ Spear base.....	1.00
Bedeck.	“ Forked base.....	1.00

BRADY SLEET PROOF PULLEYS.



Sectional cut shows construction of Pulley.

These pulleys are made large enough to take a 1/2-inch rope, and can be attached to any sized suspension cable up to 5/8 inch. The attachment to the suspension cable is accomplished by removing the four screws, taking off the plate, then clamping the same over the cable. The inside of the plate and body of the pulley are roughed so that the suspension cable is firmly gripped. The pulley will always hang straight, and will not tip up as some pulleys do that are attached to the cable by tie wires and eyes or rings.

Trade Word.		Price.
Bedim.....	.....each,	\$1.50

For Explanation of Trade Word see page 4.



ARC LIGHT SUPPLIES.

CARBON CASE.

For Trimmers' Use.



Made of heavy tin and concaved to fit body.

Trade Word.	Price.
Bedlam (tin, japanned) . . . . .	\$4.00
Bedlamite (tin, covered with leather)	8.00

CARBON BAG.



All leather, with shoulder straps.

Trade Word.	Price.
Bedridden . . . . .	each, \$8.00

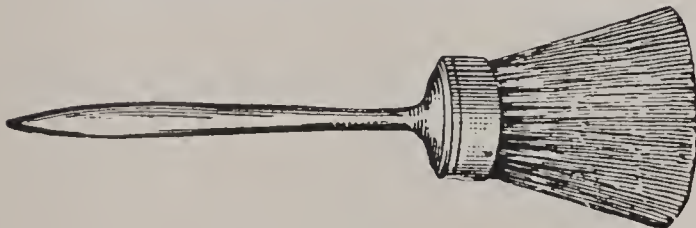
CARBON TONGS.



Trade Word.	Price.
Bedstead . . . . .	each, \$0.75

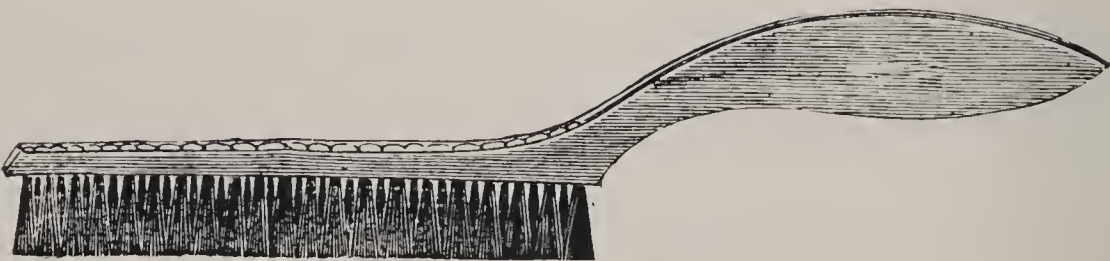
GLOBE BRUSH.

For Cleaning Arc Lamp Globes.



Trade Word.	Price.
Bedtick . . . . .	each, \$0.90

CARBON ROD BRUSH.



Trade Word.	Price.
Bedtime . . . . .	each, \$0.85

CHAMOIS SKINS.

Trade Word.	Price.
Beefeater . . . . .	each, \$0.50

EMERY CLOTH.

For Cleaning Carbon Rods in Outside Arc Lamps.

Trade Word.		Price.
Beefsteak.	No. 0 . . . . . per quire,	\$1.50
Beeswax.	" 1/2 . . . . .	" 1.50
Beetle.	" 1 . . . . .	" 1.50
Befall.	" 1 1/2 . . . . .	" 1.50
Befit.	" 2 . . . . .	" 2.00
Befogged.	" 2 1/2 . . . . .	" 2.40

CROCUS CLOTH.

For Cleaning Carbon Rods in Inside Arc Lamps.

Trade Word.	Price.
Before . . . . .	per sheet, \$0.10
Beforehand . . . . .	" quire, 2.00
Beforetime . . . . .	" ream, 30.00

EMERY PAPER.

Width, 23 1/2 inches.

Trade Word.	Price.
Befoul.	No. 0 . . . . . per quire, \$0.50
Befriend.	" 2 . . . . . " .55

For Explanation of Trade Word see page 4.



## CONSTRUCTION MATERIAL.

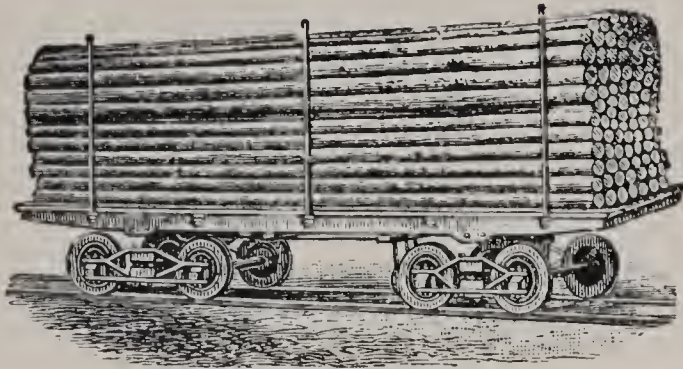


AT the time this catalogue goes to press it is complete in every respect. But so many novelties are being introduced, especially under the head of Construction Material, that we have decided to issue circulars from time to time, giving complete information of the latest things out, and forward the same to our patrons. The circulars will be of convenient size to paste into the catalogue in the proper place, so that it may be at all times complete. In case these circulars are not received we should esteem it a favor to be so advised.



CONSTRUCTION MATERIAL.

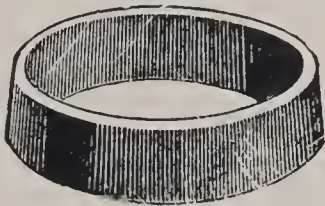
POLES.



Size.	Average Weight.	No. on Car.	Size.	Average Weight.	No. on Two Cars.
25 feet 4s.	150 lbs.	135	30 feet 7s.	375 lbs.	50
25 " 5s.	200 "	120	35 " 6s.	375 "	60
25 " 5½s.	225 "	100	35 " 7s.	500 "	55
25 " 6s.	250 "	75	40 " 7s.	600 "	45
25 " 7s.	300 "	65	45 " 7s.	700 "	40
		On two Cars.	50 " 7s.	800 "	30
30 " 5s.	250 "	75	55 " 7s.	900 "	25
30 " 6s.	300 "	60	60 " 7s.	1000 "	20

As quotations on Poles are generally wanted for Poles delivered, we can not quote definitely without knowing point of delivery. Special prices furnished on application on Poles delivered anywhere in the United States.

POLE RINGS.



Trade Word.		Price.
Cabal.	Diameter, 3 inches.....	\$0.10
Cabbage.	" 4 ".....	.12
Cabin.	" 5 ".....	.14

THE BROWN DUPLEX PIN AND BRACKET.

(R. G. BROWN'S PATENT. NOV. 23, 1886.)

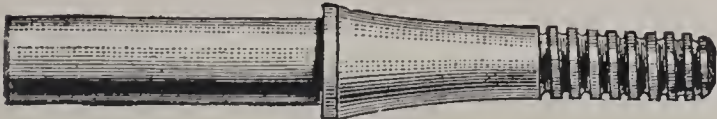


Ordinary Insulator. Duplex Pin. Brown Insulator.

Cut shows the usual method of mounting the Duplex Pins with Insulators. The Brown Insulator is placed at bottom end of pin, as it is made with a special view to shedding water.

Trade Word.		Price.
Cabinet.	1½ in. painted.....per 1000,	\$60.00
Cabman.	Duplex Brackets, painted.....	" 60.00

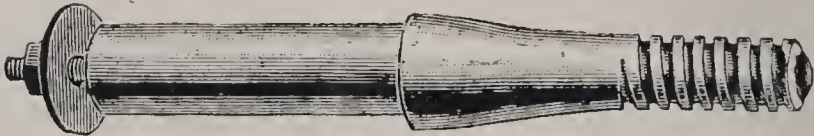
WOOD PINS.



Trade Word.		Price.
Caboose.	1½ in. Oak.....per 1000,	\$30.00
Cackle.	1¼ " ".....	25.00
Cactus.	1½ " Locust.....	50.00

All pins painted, unless otherwise ordered. We manufacture Pins and Brackets, and are first hands in these articles.

CORNER PINS.



Trade Word.		Price.
Caddy.	1½ in. Oak, with bolt and washer complete.....per 1000,	\$100.00

For Explanation of Trade Word see page 4.



## CONSTRUCTION MATERIAL.

## IRON BREAK BRACKETS.

**LEFT.**


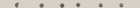


**RIGHT.**



## FORWARD.

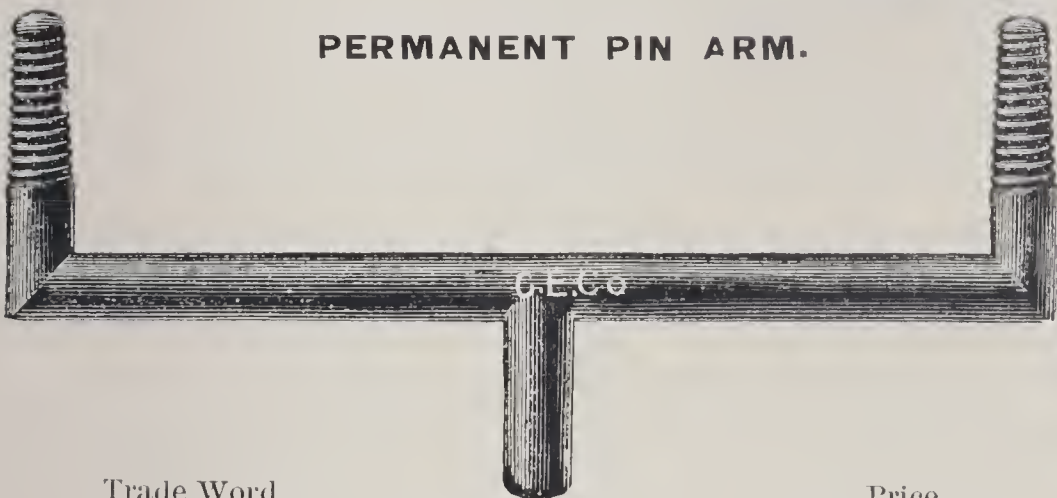


Trade Word.		Price.	Trade Word.		Price.	Trade Word.		Price.
Cadence.....	each,	\$1.00	Cadet.....	each,	\$1.00	Cage.....	each,	\$1.00

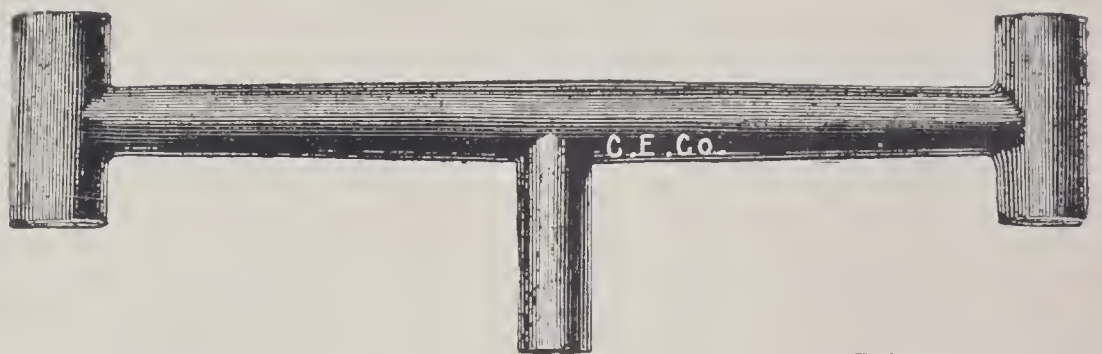
These brackets are used on the sides and ends of cross arms to take off loops or service connections.



## IRON BREAK ARMS.

**PERMANENT PIN ARM.**



### REMOVABLE PIN ARM.



Trade Word.		Price.	Trade Word.		Price.
Caitiff.	For 1 $\frac{1}{4}$ inch hole.....	each, \$1.20	Cake.....	each,	\$1.50
Cajole.	“ 1 $\frac{1}{2}$ “ “ .....	“ 1.20			

## RIDGE ROOF IRON.

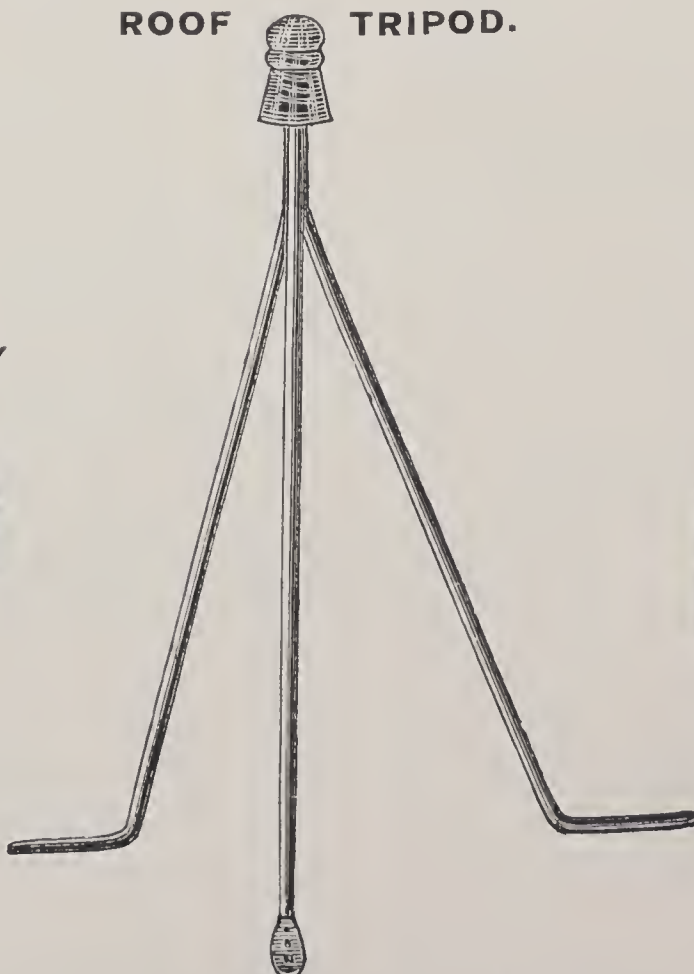


**CORNER OR CHIMNEY  
IRON.**



Trade Word.	Price.	Trade Word.	Price.
Calamity..	\$1.00	Calcene . . . . .	\$1.00

**ROOF**  **TRIPOD.**



## DOUBLE OR LOOP IRON.

For "cutting in" or running wires  
over cornices, etc.



Trade Word.	Price.
Caldron . . . . .	\$1.20

Trade Word. . . . . Price.  
 Calculate . . . . . \$2.00

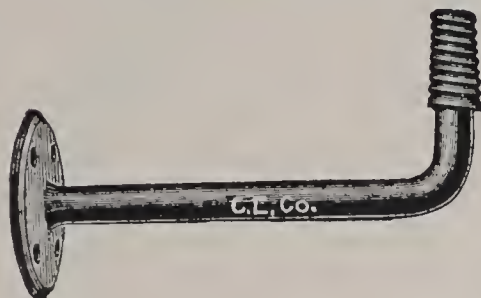
**For Explanation of Trade Word see page 4.**



# CONSTRUCTION MATERIAL.

## IRON BRACKETS.

### WALL BRACKET.



Trade Word.  
Calf. .... each, \$0.60

Price.

### CORNICE BRACKET.



Trade Word.  
Calibre ..... each, \$0.60

Price.

## ROOF BRACKETS.

### OFFSET.



Trade Word.  
Calico ..... each, \$0.60

Price.

### STRAIGHT.



Trade Word.  
Caliph ..... each, \$0.50

Price.

## LATERAL BRACKETS.

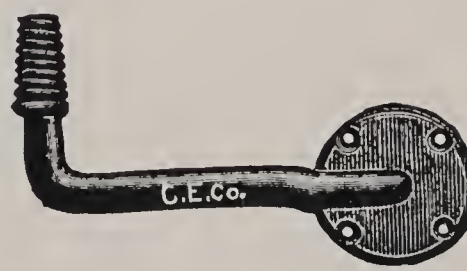
### LEFT.



Trade Word.  
Call ..... each, \$0.60

Price.

### RIGHT.



Trade Word.  
Calling ..... each, \$0.60

Price.

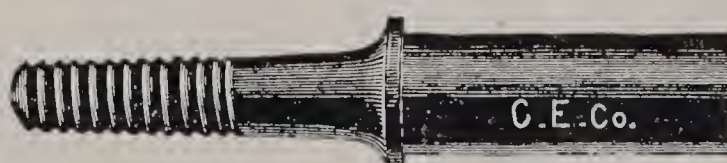
### SIDE BRACKET.



Trade Word.  
Callous ..... each, \$0.40

Price.

### IRON PIN.



Trade Word.  
Callow, 1½ inch. .... each, \$0.40

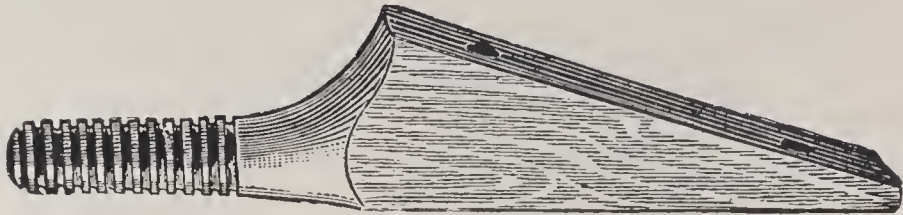
Price.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

WOOD BRACKETS.



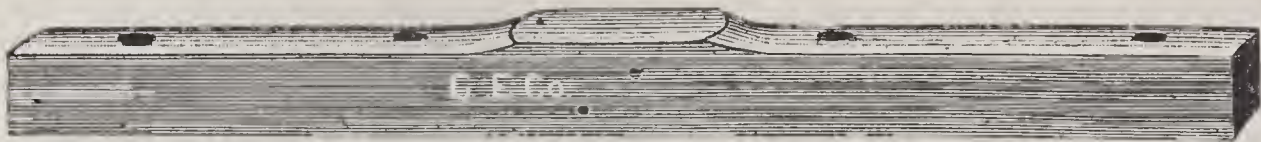
Trade Word.

Oak Painted.

Price.

Calm.....per 1000, \$35.00

STANDARD CROSS-ARMS.



Painted two coats red; finished size  $3\frac{1}{4}$  inches by  $4\frac{1}{4}$  inches. Bored for  $1\frac{1}{2}$  inch pins and two  $\frac{1}{2}$  inch bolts unless otherwise specified.

Trade Word.	Length.	No. Pins.	SPACINGS.			Price Each.
			End.	Center.	Sides.	
Calmly.....	3 feet	2	4 inches.	28 inches.		\$0.30
Calmness.....	4 “	4	4 “	16 “	12 inches.	.45
Calomel.....	5 “	4	4 “	18 “	17 “	.55
Caloric.....	6 “	4	4 “	22 “	21 “	.60
Calumet.....	6 “	6	4 “	16 “	12 “	.65
Calumny.....	8 “	6	4 “	18 “	17½ “	.80
Calvary.....	8 “	8	4 “	16 “	12 “	.90
Cambrian.....	10 “	8	4 “	17½ “	15¾ “	1.20
Cambric.....	10 “	10	4 “	16 “	12 “	1.30

Odd lengths same price as next longer arm having same number of pins. Odd spacing extra prices.

CROSS-ARM BRACE.



Trade Word.	Length.		Price.
Camel.	20 inches,	Japanned .....	\$0.15
Camelia.	20 “	Galvanized .....	.20
Cameo.	26 “	Japanned.....	.18
Camera.	26 “	Galvanized .....	.25

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

SMALL LAC SCREWS.



For attaching cross-arm braces to cross-arms.

Trade Word.		Diameter.	Length.		Price.
Camp.	Common points,	$\frac{5}{16}$ inch.	3 inches.....	per 100	\$3.30
Campaign.	“	$\frac{3}{8}$ “	4 “ .....	“	4.10
Camphor.	“	$\frac{1}{2}$ “	4 “ .....	“	6.05
Canal.	Gimlet points,	$\frac{5}{16}$ “	3 “ .....	“	3.30
Canary.	“	$\frac{3}{8}$ “	4 “ .....	“	4.10
Cancer.	“	$\frac{1}{2}$ “	4 “ .....	“	6.05

LARGE LAC SCREWS.

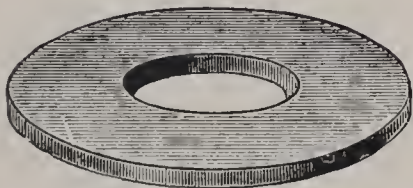


For attaching cross-arms to poles.

Trade Word.		Diameter.	Length.		Price.
Candid.	Common points,	$\frac{1}{2}$ inch	7 inches.....	per 100,	\$ 8.20
Candidate.	“	$\frac{1}{2}$ “	8 “ .....	“	8.90
Candidly.	“	$\frac{5}{8}$ “	8 “ .....	“	13.10
Candour.	“	$\frac{9}{16}$ “	9 “ .....	“	14.20
Candy.	Gimlet points,	$\frac{1}{2}$ “	7 “ .....	“	8.20
Canine.	“	$\frac{1}{2}$ “	8 “ .....	“	8.90
Canister.	“	$\frac{5}{8}$ “	8 “ .....	“	13.10
Canker.	“	$\frac{9}{16}$ “	9 “ .....	“	14.20

Other sizes furnished to order.

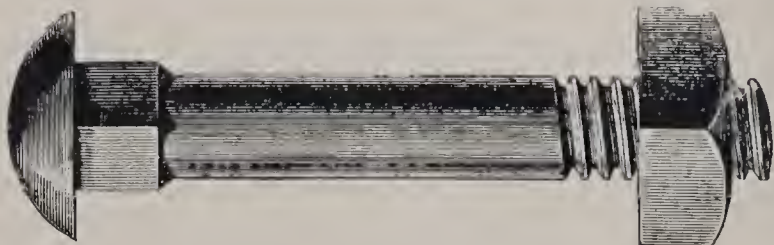
WASHERS.



Trade Word.	Diameter.	To Fit.	Av'g No. in Pound.	Price per pound.
Cannibal.	$\frac{3}{8}$ inch	$\frac{5}{16}$ inch bolt	65	\$0.10 $\frac{1}{2}$
Cannon.	$\frac{7}{16}$ “	$\frac{3}{8}$ “ “	42	.09 $\frac{1}{2}$
Cannonade.	$\frac{9}{16}$ “	$\frac{1}{2}$ “ “	22	.08 $\frac{1}{2}$
Canny.	$\frac{5}{8}$ “	$\frac{9}{16}$ “ “	13	.08 $\frac{1}{2}$
Canoe.	$\frac{3}{4}$ “	$\frac{5}{8}$ “ “	10	.08 $\frac{1}{2}$

CARRIAGE BOLTS.

FOR ATTACHING CROSS-ARM BRACES TO CROSS-ARMS.



Trade Word.	Diameter.	Length.		Price.
Canonical.	$\frac{5}{16}$ inch	4 inches....	per 100,	\$2.35
Canonize.	$\frac{3}{8}$ “	4 “ ....	“	3.10
Canopy.	$\frac{1}{2}$ “	4 “ ....	“	5.08

Price includes bolts and nuts.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

POLE STEPS—Plain.



LONG CONED POINT.

We recommend the above as a standard Pole Step, and advise the use of the  $\frac{9}{16} \times 9$  as the size most generally used.

Trade Word.	Diameter.	Length.	Price.
Cantata.	$\frac{1}{2}$ inch.	7 inches.....	each, \$0.05
Canteen.	$\frac{9}{16}$ “	9 “ .....	“ .06
Cantering.	$\frac{5}{8}$ “	8 “ .....	“ .07

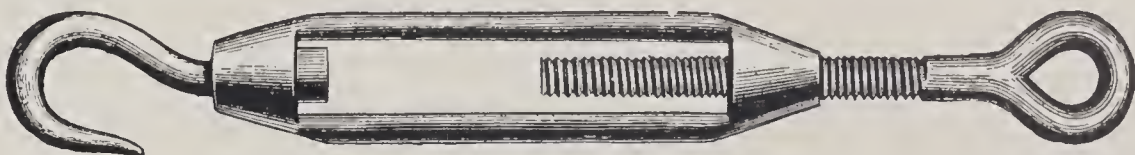
FETTER DRIVE POLE STEPS—Plain.



Trade Word.	Diameter.	Length.	Price.
Canticle.	$\frac{1}{2}$ inch.	7 inches. ....	each, \$0.08
Canton.	$\frac{9}{16}$ “	9 “ .....	“ .09
Canvas.	$\frac{5}{8}$ “	8 “ .....	“ .10

All of the above Pole Steps can be furnished galvanized, if desired, at a slight advance in price.

TURN BUCKLES—Swivel and Right-hand Thread.



WROUGHT IRON GALVANIZED.

Trade Word.	Size.	Price.
Capable.	$\frac{1}{2}$ inch .....	each, \$2.50
Capacious.	$\frac{5}{8}$ “ .....	“ 3.00
Capacity.	$\frac{3}{4}$ “ .....	“ 3.50

SPIKES.



Trade Word.	Price.
Cape. ....	per lb., \$0.05

Per Keg, Market Price.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

PATENT DIAMOND POINT STEEL SCREWS.



REGULAR ROUND, FLAT OR OVAL HEAD.

They can be driven easily with a hammer their entire length into the most thoroughly seasoned oak, maple, hickory or other hard wood when desired; but in ordinary practice the best results may be obtained by hammer-driving part way, and then turning them in with a screw driver. In any case they may be withdrawn with a screw driver.

PRICES—PER GROSS.

(Measurement from under head to point.)

Size.	No. 4	5	6	7	8	9	10	11	12	13	14	15	16	18	20
$\frac{1}{2}$ .....	.15	.15	.15												
$\frac{5}{8}$ .....	.15	.15													
$\frac{3}{4}$ .....	.15	.15	.16	.17	.18	.20	.21	.24	.27						
$\frac{7}{8}$ .....	.16	.17	.18	.19	.20	.21	.23	.25	.28	.31					
1 .....	.17	.18	.19	.20	.21	.23	.24	.26	.29	.33	.40				
$1\frac{1}{4}$ .....	....	....	.22	.23	.25	.28	.29	.32	.34	.40	.45	.48	.50		
$1\frac{1}{2}$ .....	....	....	.25	.26	.28	.31	.33	.37	.40	.46	.47	.53	.55	.70	
$1\frac{3}{4}$ .....	....	...	.29	.31	.33	.35	.37	.40	.42	.49	.52	.60	.62	.79	
2 .....	....	....	....	....	.37	.40	.42	.44	.47	.55	.58	.66	.71	.94	1.15
$2\frac{1}{4}$ .....	....	....	....	....	....	....	.47	.50	.53	.60	.63	.73	.78		
$2\frac{1}{2}$ .....	....	....	....	....	....	....	.53	.56	.59	.65	.68	.80	.85	1.05	1.25
$2\frac{3}{4}$ .....	....	....	....	....	....	....	....	....	.70	.75	.78	.90	.95	1.15	1.35
3 .....	....	....	....	....	....	....	....	....	.85	.86	.88	1.00	1.04	1.25	1.45
$3\frac{1}{2}$ .....	....	....	....	....	....	....	....	....	1.10	1.12	1.14	1.20	1.22	1.48	1.75
4 .....	....	....	....	....	....	....	....	....	....	....	....	....	1.60	1.85	2.05
$4\frac{1}{2}$ .....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.50

In ordering screws please use number and length.



CONSTRUCTION MATERIAL.

IRON MACHINE SCREWS.  
REGULAR ROUND AND FLAT HEAD.—PER GROSS.

	THREADS PER INCH.																		
	56	48	32, 36, 40		30, 32			24, 30, 32		20, 24		16, 18, 20	16, 18			14, 16			
No.	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30
Inch.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
3-16	55	55	55	55	55														
$\frac{1}{4}$	55	55	55	55	55	65	65	75	75										
5-16	55	55	55	55	55	65	65	75	75										
$\frac{3}{8}$	55	55	55	55	55	65	65	75	75	85	95	105							
7-16	55	55	55	55	55	65	65	75	75	85	95	105							
$\frac{1}{2}$	55	55	55	55	55	65	65	75	75	85	95	105	115	120	135	150			
$\frac{5}{8}$	....	60	60	60	60	65	65	75	75	85	95	105	115	120	135	150			
$\frac{3}{4}$	....	...	65	65	65	65	65	75	75	85	95	105	120	125	140	150	160		
$\frac{7}{8}$	....	....	....	75	75	75	75	85	85	95	105	110	125	130	150	160	170	190	
1	....	....	....	....	85	85	85	95	95	95	110	115	130	135	160	170	190	210	235
$1\frac{1}{8}$	....	....	....	....	....	95	95	95	95	100	115	120	130	140	170	180	200	220	250
$1\frac{1}{4}$	....	....	....	....	....	....	100	100	100	100	120	125	135	145	180	190	200	230	260
$1\frac{3}{8}$	....	....	....	....	....	....	....	110	110	120	125	130	140	150	190	200	210	240	270
$1\frac{1}{2}$	....	....	....	....	....	....	....	....	110	120	130	135	145	160	190	200	215	245	275
$1\frac{3}{4}$	....	....	....	....	....	....	....	....	....	130	140	150	160	170	200	215	230	260	290
2	....	....	....	....	....	....	....	....	....	....	150	160	170	190	215	230	245	275	310
$2\frac{1}{4}$	....	....	....	....	....	....	....	....	....	....	....	175	190	200	220	245	260	290	340
$2\frac{1}{2}$	....	....	....	....	....	....	....	....	....	....	....	....	200	215	240	260	275	310	380
$2\frac{3}{4}$	....	....	....	....	....	....	....	....	....	....	....	....	....	230	250	275	290	340	420
3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	275	290	310	380	460

BRASS MACHINE SCREWS.  
REGULAR ROUND AND FLAT HEAD.—PER GROSS.

THREADS PER INCH.																			
	56	48	32, 40	36,	30, 82			24, 32	30,	20, 24		16,18 20	16, 18		14, 16				
No.	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30
Inch.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
3-16	70	70	70	80	80														
$\frac{1}{4}$	70	70	70	80	80	100	110	125	145										
5-16	70	70	70	80	80	100	110	125	145										
$\frac{3}{8}$	70	70	70	80	80	100	110	125	145	170	200	230							
7-16	70	70	70	80	80	105	115	125	145	170	200	230							
$\frac{1}{2}$	70	70	70	80	80	105	115	125	145	170	200	230	330	370	420	470			
$\frac{5}{8}$	....	90	90	90	90	110	120	140	155	180	220	250	330	370	450	550			
$\frac{3}{4}$	....	....	110	110	110	120	125	160	165	195	240	270	360	400	550	630	660		
$\frac{7}{8}$	....	....	....	130	130	140	150	160	175	210	255	295	390	440	600	630	700	780	
1	....	....	....	....	150	150	170	180	190	230	275	320	415	470	650	680	780	805	940
$1\frac{1}{8}$	....	....	....	....	....	180	180	200	220	250	300	350	450	510	675	730	790	870	1010
$1\frac{1}{4}$	....	....	....	....	....	....	200	225	250	270	325	375	480	550	700	780	805	940	1080
$1\frac{3}{8}$	....	....	....	....	....	....	....	250	270	325	350	410	520	590	725	790	870	1010	1150
$1\frac{1}{2}$	....	....	....	....	....	....	....	....	325	350	370	430	545	630	750	805	940	1080	1220
$1\frac{3}{4}$	....	....	....	....	....	....	....	....	....	375	425	500	625	680	780	870	1010	1150	1300
2	....	....	....	....	....	....	....	....	....	....	500	575	675	780	860	940	1080	1220	1400
$2\frac{1}{4}$	....	....	....	....	....	....	....	....	....	....	....	650	775	805	910	1010	1150	1300	1520
$2\frac{1}{2}$	....	....	....	....	....	....	....	....	....	....	....	....	800	870	980	1080	1220	1400	1650
$2\frac{3}{4}$	....	....	....	....	....	....	....	....	....	....	....	....	....	940	1050	1150	1300	1520	1800
3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1100	1220	1400	1650	2000

On Machine Screws made to order, differing in length, size, thread or head, from our regular Standard Flat and Round Head Machine Screws, special prices will be given on application, and also on Fillister Head Machine Screws, when ordered in less quantity than ten gross of a kind. In ordering screws please use number and length.



CONSTRUCTION MATERIAL.

SCREWS—Continued.

BRASS WOOD SCREWS.

FLAT AND ROUND HEAD, PER CROSS.

No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26
Inches.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$\frac{1}{4}$ .....	42	42	44	46	48																		
$\frac{3}{8}$ .....	42	43	45	47	50	54	57	63															
$\frac{1}{2}$ .....		45	47	49	54	57	64	69	79	88	99												
$\frac{5}{8}$ .....			48	52	56	63	69	77	88	99	112	125	140										
$\frac{3}{4}$ .....			56	58	60	67	75	84	98	111	126	140	158	175	195	215	237						
$\frac{7}{8}$ .....			72	74	76	79	81	93	108	123	139	156	175	194	216	239	264						
1.....				81	84	86	88	102	119	135	153	172	192	214	238	263	290	....	348				
$1\frac{1}{4}$ .....				108	111	113	116	118	139	158	171	202	227	253	281	311	344	377	413	490			
$1\frac{1}{2}$ .....					149	152	154	156	159	181	207	234	263	294	327	362	400	440	481	571			
$1\frac{3}{4}$ .....							196	199	201	204	233	264	298	334	372	414	455	500	548	651	763	886	
2.....							252	254	256	259	261	296	335	375	417	463	511	561	616	730	856	994	
$2\frac{1}{4}$ .....									360	364	366	368	371	416	463	514	566	624	683	810	950	....	
$2\frac{1}{2}$ .....											499	501	504	506	508	564	623	684	751	891	1044	1210	
$2\frac{3}{4}$ .....											720	722	724	727	729	732	734	....	884	1050	1230	1426	1638

NICKEL-PLATED IRON SCREWS.

REGULAR ROUND AND FLAT HEAD, PER CROSS.

No.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20
Inches.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$\frac{1}{2}$ .....	145	145	145	145	145	150	160									
$\frac{5}{8}$ ....	145	145	145	145	145	155	163	185	205							
$\frac{3}{4}$ .....	145	145	145	145	150	157	170	190	215	235	270					
$\frac{7}{8}$ .....			145	150	155	161	170	190	220	240	275	315	360			
1.....			150	155	155	168	175	195	225	245	280	325	370			
$1\frac{1}{4}$ .....			155	155	165	180	195	210	230	260	295	335	385	420	465	
$1\frac{1}{2}$ .....				188	194	205	215	238	250	285	315	355	400	440	485	585
$1\frac{3}{4}$ .....				215	220	230	240	255	280	312	345	380	420	460	510	615
2.....						240	250	270	300	345	375	405	445	500	555	670
$2\frac{1}{4}$ .....							285	300	325	375	400	430	480	530	610	725
$2\frac{1}{2}$ .....							345	355	365	400	425	475	510	585	665	790
$2\frac{3}{4}$ .....											460	....	540	....	730	875
3.....											500	....	620	....	805	945

In ordering Screws please use number and length.



CONSTRUCTION MATERIAL.

IRON WOOD SCREWS, ROUND AND FLAT HEADS.

PRICES BY THE GROSS.



No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26	28	30
In.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$\frac{1}{4}$	20	20	20	20	20																				
$\frac{3}{8}$	20	20	20	20	20	20	22	24	26	30															
$\frac{1}{2}$	....	20	20	20	20	22	24	26	28	33	37	42	45												
$\frac{5}{8}$	....	20	20	20	22	24	26	28	31	35	40	44	48	53	58										
$\frac{3}{4}$	....	..	20	22	24	26	28	30	32	36	41	46	50	56	62	75	85								
$\frac{7}{8}$	....	..	22	24	26	28	30	32	35	40	44	48	54	60	66	80	90								
1	....	..	..	27	28	30	32	34	38	42	46	52	58	64	72	83	95	110	130	150					
$1\frac{1}{4}$	.....				32	34	36	39	42	47	50	56	62	70	77	87	100	120	135	160	180	210			
$1\frac{1}{2}$	.....				37	40	44	47	50	54	57	64	70	80	87	97	110	130	145	170	190	220			
$1\frac{3}{4}$	.....						50	54	57	60	67	74	80	87	97	107	120	140	155	175	200	240			
2	.....						64	67	70	74	77	80	87	94	105	115	127	145	160	190	225	260			
$2\frac{1}{4}$	.....									84	87	90	94	97	100	110	125	137	155	170	205	250	280		
$2\frac{1}{2}$	.....									97	100	104	107	110	115	120	135	147	165	180	220	270	310		
$2\frac{3}{4}$	.....											127	130	134	137	140	150	160	178	200	240	290	340		
3	.....											154	157	160	164	167	175	180	200	220	260	320	380	460	
$3\frac{1}{2}$	.....											197	200	204	207	210	215	220	240	270	310	370	430	510	
4	.....												260		270		280		320	360	420	490	560		
$4\frac{1}{2}$	.....																360		380	430	470	570	650		
5	.....																		520	540	570	650	740	900	
6	.....																			700	740	790	890	1000	1120

In ordering screws please use number and length.



CONSTRUCTION MATERIAL.

BRUSH COPPER.

MADE ESPECIALLY FOR DYNAMO BRUSHES.

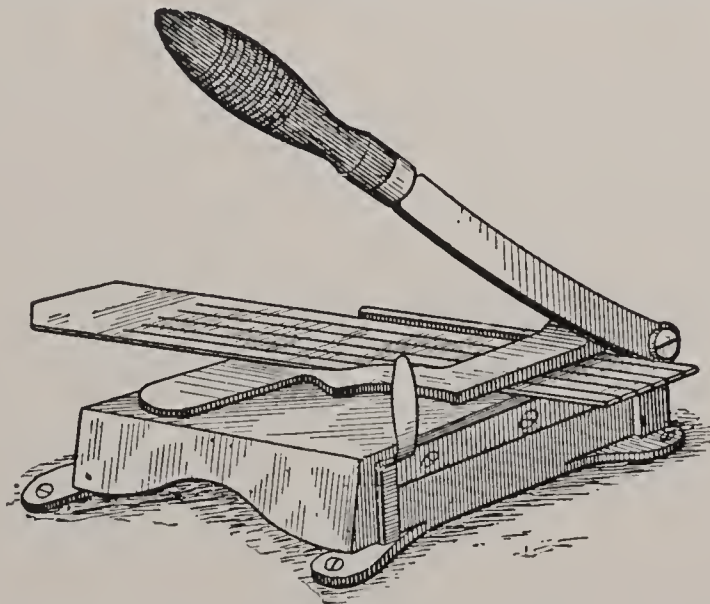
Regular sizes always in stock. Special sizes made upon short notice.

Numbers. B. & S. Guage.	½ Inch and Narrower.	Over ½ Inch to 1 Inch.	Over 1 Inch to 1½ Inch.	Over 1½ Inch to 2 Inch.	Over 2 Inch to 2½ Inch.	Over 2½ Inches.
23.....	\$0.37½	\$0.37	\$0.36½	\$0.36½	\$0.36½	\$0.36
24.....	.37½	.37	.36½	.36½	.36½	.36
25.....	.38½	.38	.37½	.37½	.37½	.37
26.....	.38½	.38	.37½	.37½	.37½	.37
27.....	.40	.39½	.39	.39	.39	.38
28.....	.40	.39½	.39	.39	.39	.38
29.....	.41	.40½	.40	.40	.40	.39
30.....	.41	.40½	.40	.40	.40	.39
31.....	.43	.42	.41½	.41½	.41½	.40
32.....	.43½	.42½	.41½	.41½	.41½	.40
33.....	.44½	.43½	.42½	.42½	.42½	.41
34.....	.44½	.43½	.42½	.42½	.42½	.41
35.....	.46	.45	.44	.44	.44	.42
36.....	.47	.46	.45	.45	.45	.43
37.....	.50	.49	.46	.45½	.45	.43
38.....	.53	.49½	.48	.47½	.47	.44
39.....	.56	.51	.49½	.48	.47	.44
40.....	.60	.53	.50	.49	.48	.45

In ordering Brush Copper please use the numbers.

We are prepared to furnish brushes made up for any system on short notice. In ordering, please state guage of copper, length and width of brush, and number of leaves desired; also whether to be solid or split.

DYNAMO BRUSH TRIMMER.



Quick as a flash and bound to cut true, as the mere act of placing the brush in position squares it for the knife. The hand clamp prevents shifting during the operation of cutting.

Trade Word.

Beantrefoil.....each, \$8.00

Price.

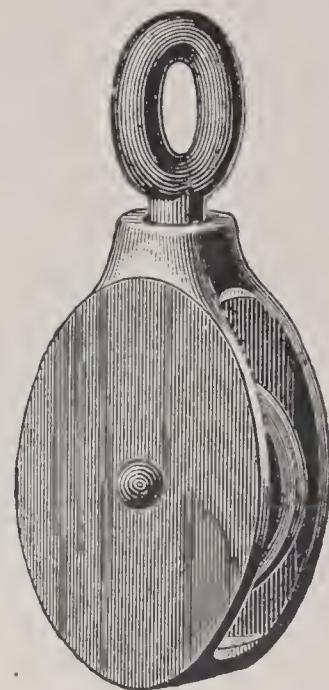
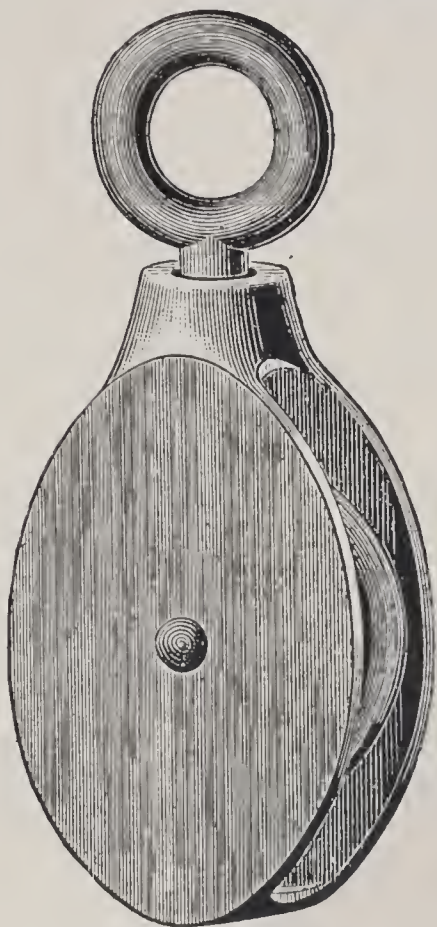
For Explanation of Trade Word see page 4.



## CONSTRUCTION MATERIAL.

## CALVANIZED IRON PULLEY BLOCKS.

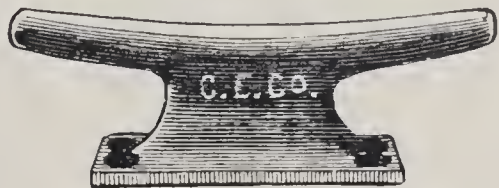
**REGULAR PATTERN.**



WITH SWIVEL EYE.							WITH SWIVEL EYE.							
Trade Word.	Length of Shell.						Price.	Trade Word.	Price.					
Caper.	No. 0,	Single	Sheave,	1	inch,	with stiff eye,	per doz.,	\$1.50	Capsize.	With swivel eye,	per doz.	\$1.50		
Capital.	" 1	"	"	1 $\frac{3}{8}$	"	"	"	2.00	Capsizing.	"	"	2.00		
Capitalist.	" 2	Double	"	1 $\frac{3}{8}$	"	"	"	3.00	Capstan.	"	"	3.00		
Capitally.	" 3	Single	"	1 $\frac{3}{4}$	"	"	"	3.50	Capsular.	"	"	3.50		
Capitation.	" 4	Double	"	1 $\frac{3}{4}$	"	"	"	4.50	Capsule.	"	"	4.50		
Capitulate.	" 5	Single	"	2	"	"	"	5.50	Captain.	"	"	5.50		
Capon.	" 6	Double	"	2	"	"	"	7.00	Captious.	"	"	7.00		
Caprice.	" 7	Single	"	2 $\frac{1}{4}$	"	"	"	8.00	Captivate.	"	"	8.00		
Capricious.	" 8	Double	"	2 $\frac{1}{4}$	"	"	"	10.00	Captivating.	"	"	10.00		

## ARC LAMP CLEATS.

## GALVANIZED MALLEABLE IRON.



Trade Word.				Price.
Captive.	2	inches long.	per doz.,	\$1.30
Captivity.	3 $\frac{1}{4}$	“	“	2.00
Captor.	3 $\frac{3}{4}$	“	“	3.00
Captured.	4 $\frac{1}{2}$	“	“	3.30
Carabine.	5 $\frac{3}{4}$	“	“	3.70
Caravan.	6	“	“	5.00

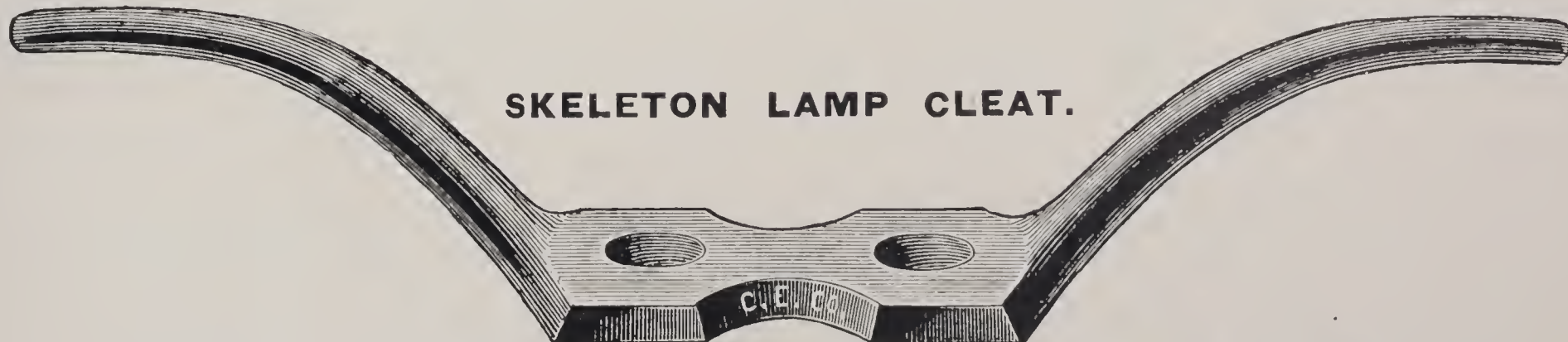
## COMBINATION ARC LAMP CLEATS.

## NORCROSS IMPROVED PATTERN.



The base and socket are made of Galvanized Iron and the pin of Hickory.

Trade Word.	Length of wood					Price.
Caraway.	6	inches	.....	each,		\$0.50
Carbonate.	7	"	.....	"		.60
Carbonize.	8	"	.....	"		.70
Carbuncle.	9	"	.....	"		.90
Carcass.	10	"	.....	"		1.25
Cardboard.	11	"	.....	"		1.60
Carded.	12	"	.....	"		2.00



**FOR FASTENING UP ARC AND INCANDESCENT LAMPS WHEN SUPPORTED FROM POLES.**

Trade Word.	Size.	Price.
Cardinal. Galvanized.	4½ inches.....	each, \$0.40
Careen.	6 ".....	" .60
Careful.	8 ".....	" .75
Careless.	10 ".....	" 1.80

**For Explanation of Trade Word see page 4.**



CONSTRUCTION MATERIAL.

TACKLE BLOCKS.



INSIDE IRON STRAPPED.

Common Hooks, Iron Sheaves, Steel Pins.

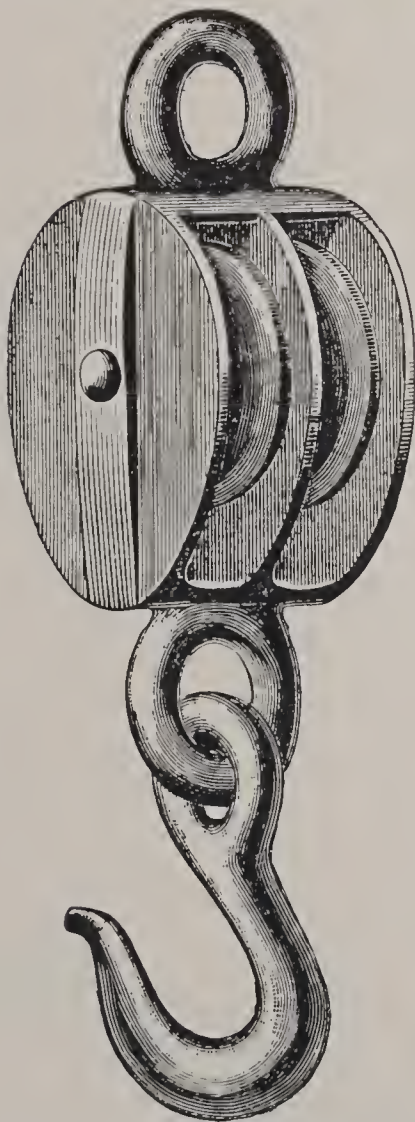
Trade Word.	Shell, in.	For Rope, in.	Sheave, in.	Price.
Caress.	4	1 1/2	2 1/4 X 10-16	\$1.40
Caressing.	5	5/8	3 X 13-16	1.80
Cargo.	6	3/4	3 1/2 X 15-16	2.20
Caricature.	7	7/8	4 3/8 X 1 1-16	2.60



Common Hooks, Iron Sheaves, Steel Pins.

Trade Word.	Shell, in.	For Rope, in.	Sheave, in.	Price.
Carman.	4	1 1/2	2 1/4 X 10-16	\$2.50
Carmelite.	5	5/8	3 X 13-16	3.50
Carmine.	6	3/4	3 1/2 X 15-16	4.00
Carnage.	7	7/8	4 3/8 X 1 1-16	4.80

GALVANIZED IRON PULLEY BLOCKS.

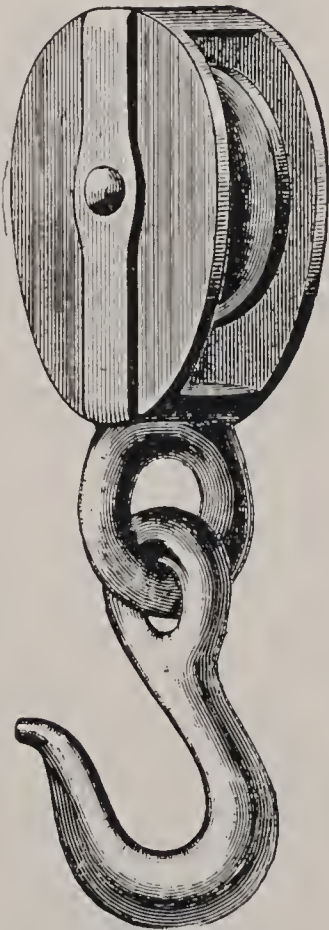


With Eye, Becket and Loose Hook.

WITH LOOSE HOOKS.

(Galvanized Iron.)

Trade Word.				Price.
Carnal.	No. 1, Single Sheave, for	5/8 in. rope.,	per doz.	\$10.80
Carnation.	No. 2, Double	" " 5/8	" "	18.00
Carnival.	No. 3, Single	" " 3/4	" "	15.00
Carol.	No. 4, Double	" " 3/4	" "	24.00



With Eye and Loose Hook.

WITH EYE OR EYE AND BECKET.

(Galvanized Iron, Without Hooks.)

Trade Word.				Price.
Carousal.	No. 1, Single Sheave, for	5/8 in. rope.,	per doz.	\$ 7.00
Carouse.	No. 2, Double	" " 5/8	" "	10.00
Carousing.	No. 3, Single	" " 3/4	" "	9.00
Carpenter.	No. 4, Double	" " 3/4	" "	12.00

NOTE.—For benefit of customers not familiar with the terms, and who wish to order these goods, we would explain that the difference between an *eye* and a *becket* is that the former is situated at the top of the block (next to the rope) while the latter is at the bottom.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

CLARK'S PATENT PULLEY BLOCKS.

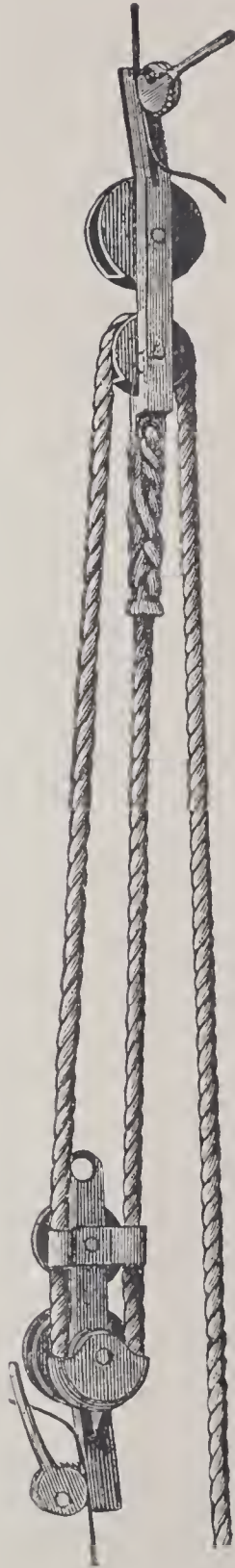
THE LATEST THING FOR PULLING AND TIGHTENING ALL KINDS OF WIRE.



Cut No. 1.

The Blocks will not injure the wire, nor injure or strip the insulation. It combines all the virtues of the old style pulley block and come-along, and none of their disadvantages. The weight, including rope, is only three pounds, and the purchase is so great that an ordinary telegraph or telephone wire can be pulled asunder by one man. No time lost with long rope, as the pulleys being open, the need of long rope is obviated, and therefore fifteen to twenty feet of rope is ample for any purpose. You can at pleasure throw the rope over enough pulleys for a heavy pull, as in Cut 1, or for a light pull, as shown in Cut 2. Without loss of time for adjustment, so common and tedious with the old style pulley blocks, as the pull requires you can use 1, 2, 3, 4 or 5 pulleys, doubling your strength every time you add a pulley.

The Pulley Block will hold the wire when tight; the coupling is made by fastening unused end of rope to pulley block so the line-man can use both hands to make his coupling. The direction of the pull can be changed at will by throwing the rope on or off a pulley, a great advantage to a man on a pole. This is the only tool with which a line-man can, unaided, tighten up a line or take the sag out of a line on top of a pole. The weight is so small that it is no burden for line-man to carry. No parts to wear out or break.



Cut No. 2.

FOR IRON LINE WIRE.

Trade Word.		Price.
Carpet.	No. 8 to No. 16.....	\$10.00

FOR INSULATED WIRE.

Carpeting.	No. 0 to No. 10.....	12.00
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For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

CALVANIZED IRON SUSPENSION CABLE.



For Suspending Lamps over Streets—Not Flexible.  
Composed of 42 Wires, with Rope Center.

Trade Word.	Diameter in inches.	Weight per 100 feet in lbs.	Estimated Breaking Strain in lbs.	Price per pound.
Cascade .....	$\frac{1}{4}$	10	2,000	\$0.28
Case.....	$\frac{3}{8}$	21.3	5,000	.17 $\frac{1}{2}$
Casement.....	$\frac{1}{2}$	34.4	7,000	.16
Casemented.....	$\frac{5}{8}$	....	14,000	.13
Casementing.....	$\frac{3}{4}$	....	18,000	.12
Casemill.....	$\frac{7}{8}$	....	20,000	.11
Casemiller.....	1	....	24,000	.11

CALVANIZED AND ANNEALED IRON ARC LAMP CORDAGE.



Very Flexible.—For Use With Pulleys.

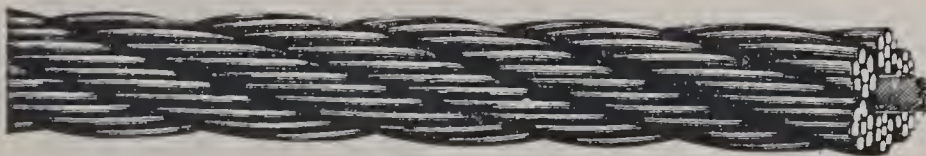
ANNEALED AND CALVANIZED.

Trade Word.		Price per 100 feet.
Cash.	$\frac{1}{4}$ inch diameter.....	\$2.50
Cashed.	$\frac{7}{32}$ " " .....	2.00
Cashier.	$\frac{3}{16}$ " " .....	1.50
Cashmere.	$\frac{1}{8}$ " " .....	1.00
Casing.	$\frac{1}{16}$ " " .....	.50

ANNEALED—NOT CALVANIZED.

Trade Word.		Price per 100 feet.
Casino.	$\frac{1}{4}$ inch diameter .....	\$2.50
Cask.	$\frac{7}{32}$ " " .....	2.00
Casket.	$\frac{3}{16}$ " " .....	1.50
Cassock.	$\frac{1}{8}$ " " .....	1.00
Castanet.	$\frac{1}{16}$ " " .....	.50

TWISTED ARC LAMP CORDAGE.

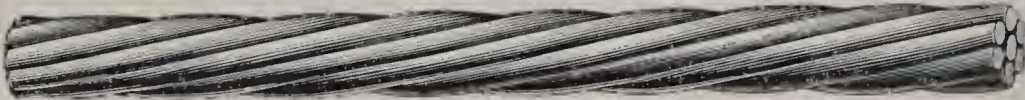


FOR OUTSIDE WORK.

Trade Word.	Size, Inches.	Price per 100 feet.
Castigation .....	$\frac{1}{4}$	\$1.00
Castigator.....	$\frac{5}{16}$	1.25
Castilian.....	$\frac{3}{8}$	1.75
Casting.....	$\frac{1}{2}$	2.25

Larger sizes to order.

CALVANIZED STEEL WIRE STRAND.



Trolley Wire Suspension Cable, Railroad and Mine Signal Ropes, Etc.

This is composed of seven wires twisted together into a single strand.

Trade Word.	7 Wires.	Diameter in inches.	Weight per 100 feet in lbs.	Estimated Breaking Strength in lbs.	Price per pound.
Carriage...	No. 8	$\frac{1}{2}$	50	10,000	\$0.05
Carrot....	11	$\frac{3}{8}$	29 $\frac{1}{4}$	6,300	.05 $\frac{1}{4}$
Carry.....	12	$\frac{5}{16}$	20	4,000	.05 $\frac{1}{2}$
Cart.....	13	$\frac{9}{32}$	18 $\frac{1}{4}$	3,600	.05 $\frac{3}{4}$
Carted ....	15	$\frac{1}{4}$	12	2,300	.06 $\frac{3}{4}$
Carve.....	20	$\frac{1}{8}$	3	570	.08 $\frac{1}{2}$

CALVANIZED IRON GUY WIRE.

IRON WIRE CAUCE.

Trade Word.	No.	Weight per 100 feet in lbs.	Estimated Breaking Strain in lbs.	Price, per pound.
Castaway .....	4	13.39	3,400	\$0.10
Caste.....	6	9.73	2,500	.10
Castellan.....	8	6.96	1,750	.10
Castellated.....	10	....	....	.11
Caster.....	12	....	....	.11 $\frac{1}{2}$
Castigate.....	14	....	....	.12 $\frac{1}{2}$

BRAIDED COTTON ARC LAMP CORDAGE.



FOR INSIDE WORK.

Trade Word.	Size, Inches.	Price per 100 feet.
Castle.....	$\frac{1}{4}$	\$1.50
Castrate.....	$\frac{5}{16}$	2.00
Castrator.....	$\frac{3}{8}$	3.50
Castration.....	$\frac{1}{2}$	5.50

Larger sizes to order.

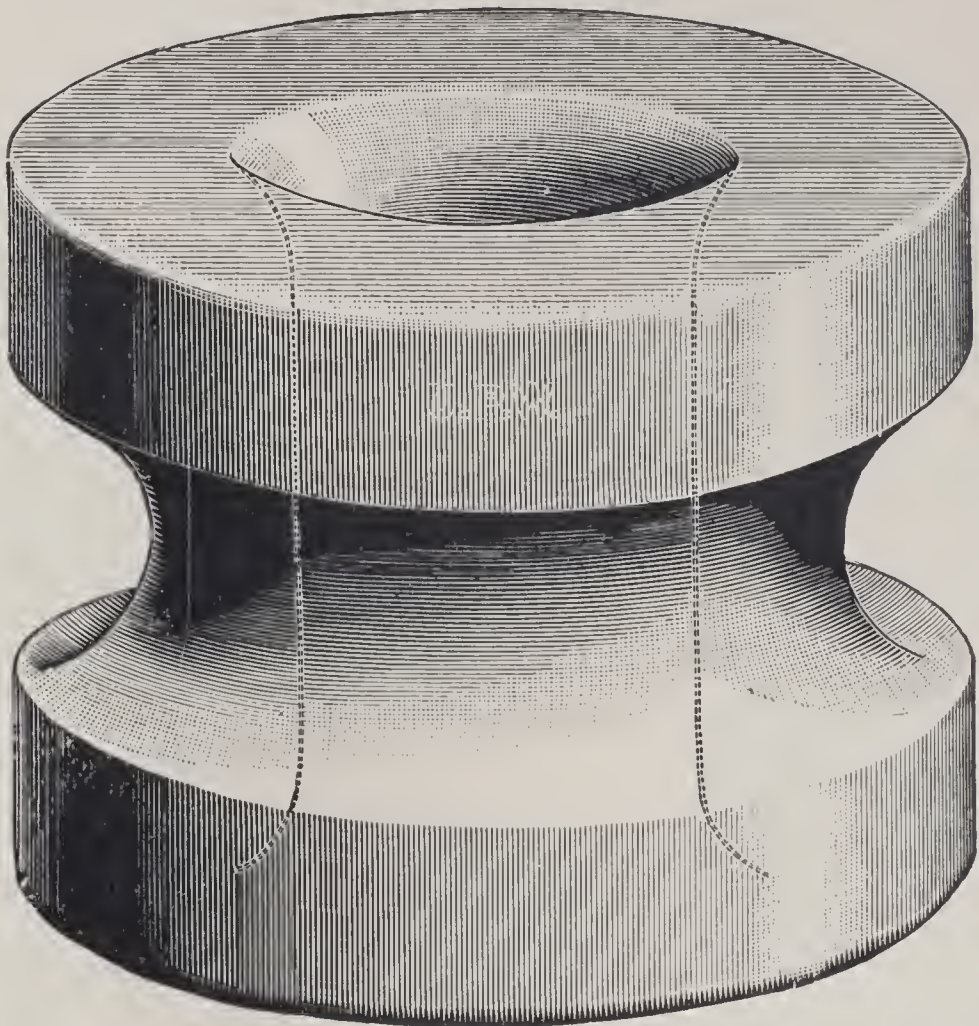
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

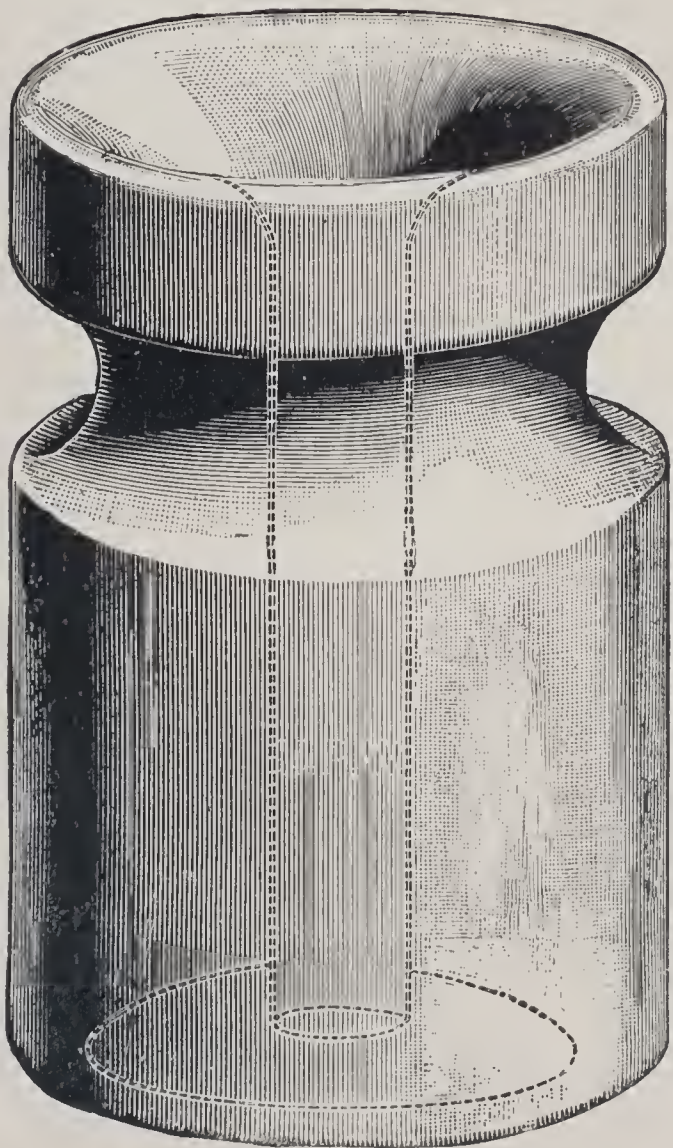
PORCELAIN INSULATORS.

CUTS FULL SIZE.

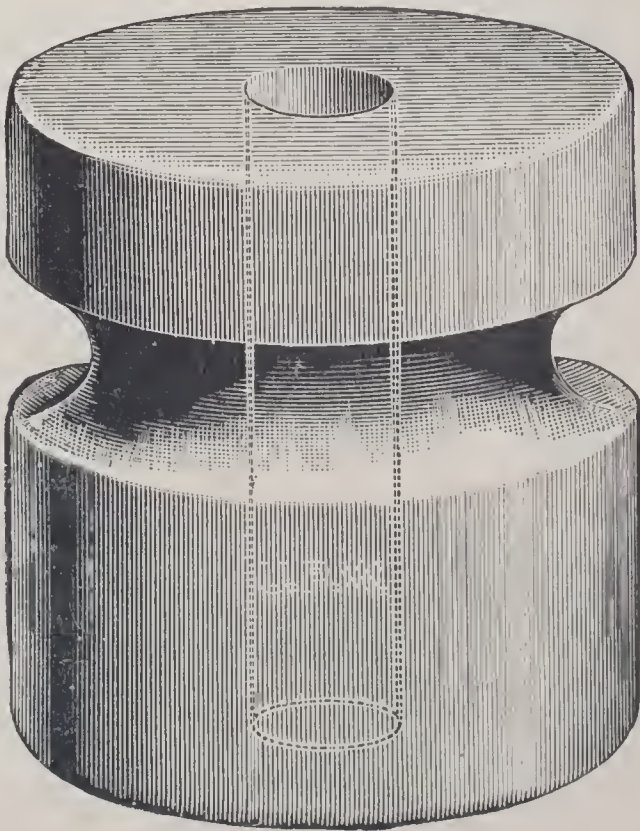


No. 0.

Trade Word.		Price.
Casual.....	per 1,000,	\$200.00



No. 1.



No. 2.

Trade Word.	Price.	Trade Word.	Price.
Casual.....	per 1,000, \$80.00	Casual.....	per 1,000, \$36.00

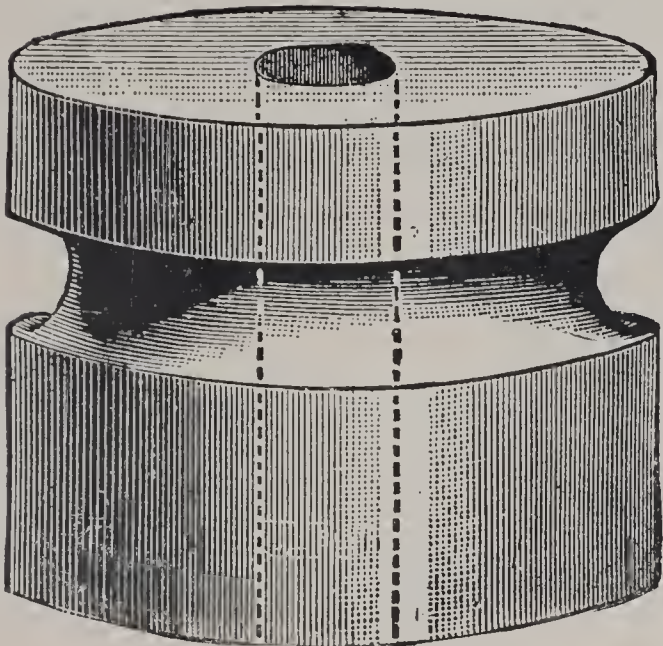
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

PORCELAIN INSULATORS—Continued.

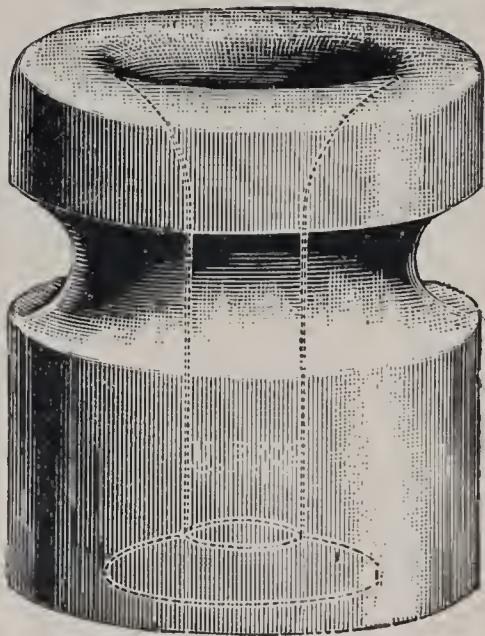
CUTS FULL SIZE.



No. 5.

With Countersunk Base and Top and Round Head.

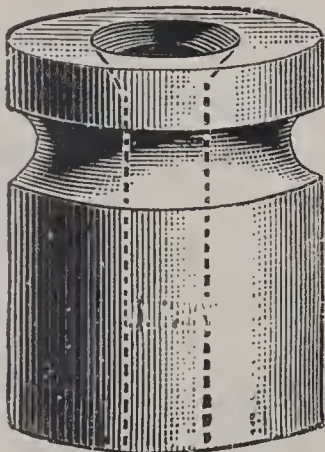
Trade Word.	Price.
Catacomb. . . . . per 1,000,	\$35.00



No. 4.

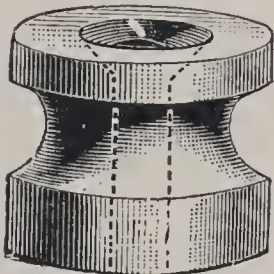
Round Top and with Countersunk Base and Top.

Trade Word.	Price.
Catapult . . . . . per 1,000,	\$16.00



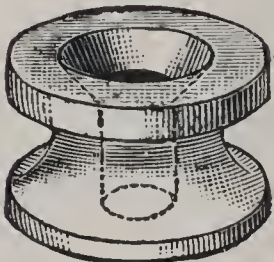
No. 3.

Trade Word.	Price.
Cataract . . . per 1,000,	\$10.00



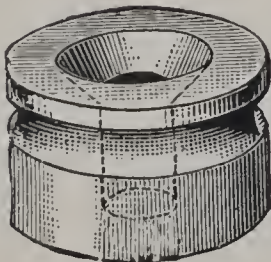
No. 6.

Trade Word.	Price.
Catarrh . . . per 1,000,	\$6.00



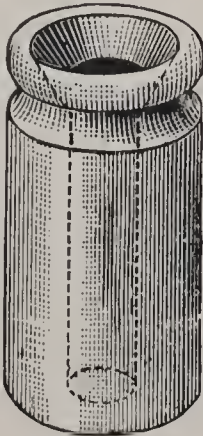
No. 7.

Trade Word.	Price.
Catastrophe . . per 1,000,	\$6.00



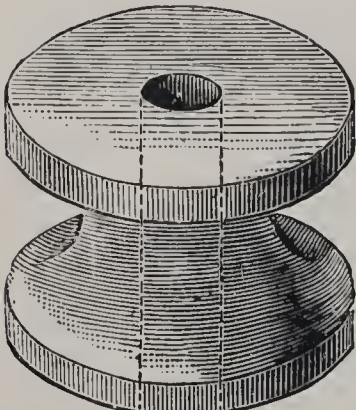
No. 8.

Trade Word.	Price.
Catch . . . . . per 1,000,	\$6.00



No. 13.

Trade Word.	Price.
Catching . . . per 1,000,	\$8.00



No. 11.

Trade Word.	Price.
Catchpenny . . per 1,000,	\$8.40

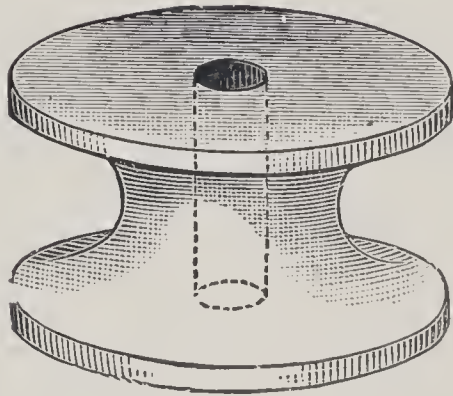
For Explanation of Trade Word see page 4.



# CONSTRUCTION MATERIAL.

## PORCELAIN INSULATORS—Continued.

CUTS FULL SIZE.

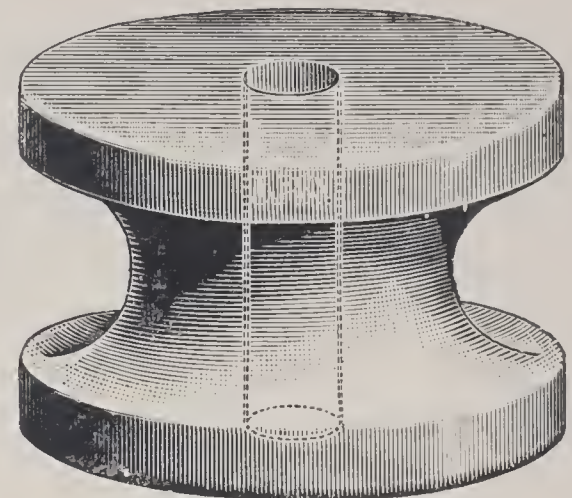


No. 12.

Trade Word.

Price.

Catchword.....per 1000, \$15.00

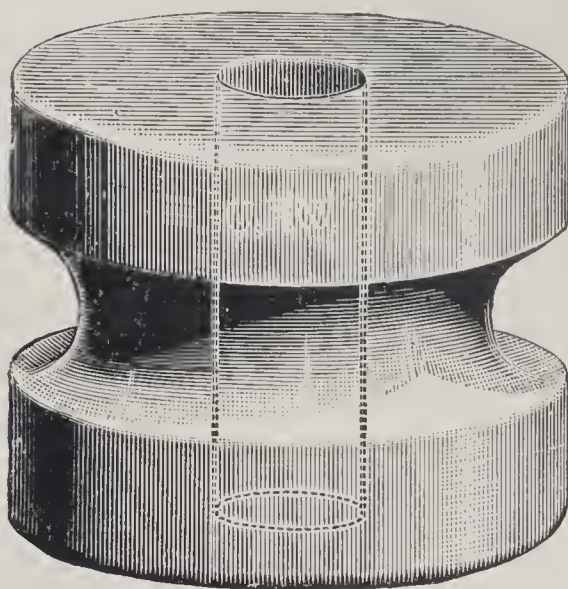


No. 70.

Trade Word.

Price.

Catechise.....per 1000, \$22.00

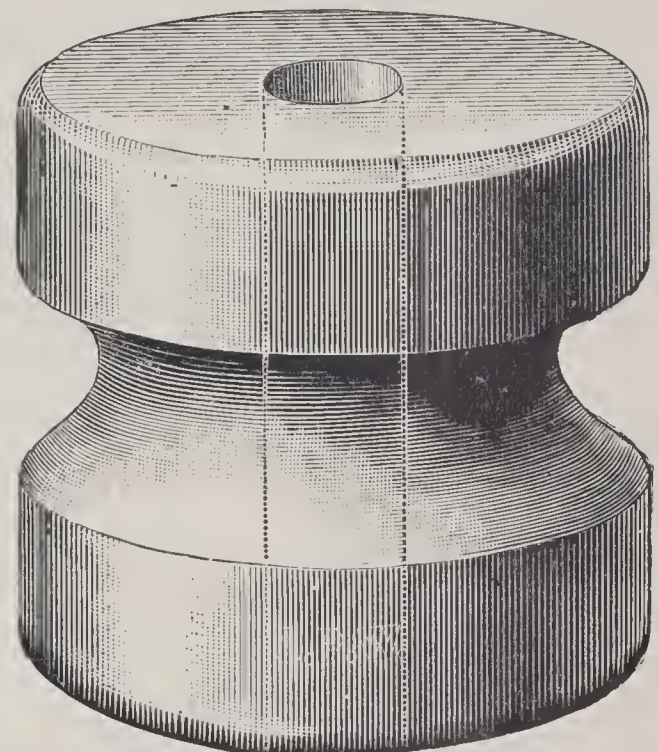


No. 69.

Trade Word.

Price.

Catechised.....per 1000, \$20.00

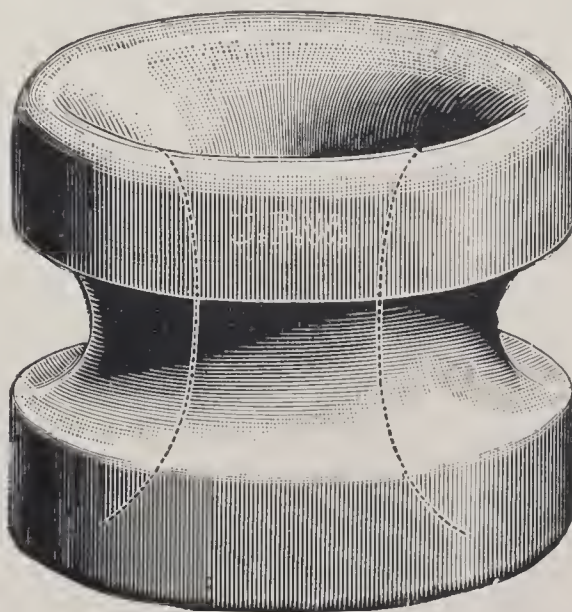


No. 24.

Trade Word.

Price.

Catechism.....per 1000, \$35.00



No. 36.

Trade Word.

Price.

Categorical.....per 1000, \$24.00

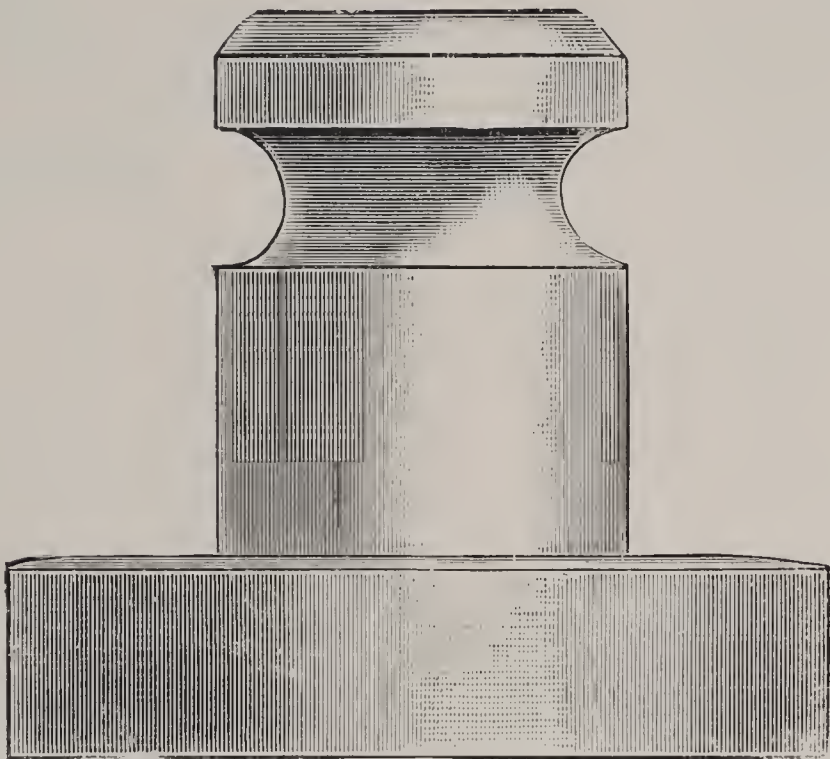
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

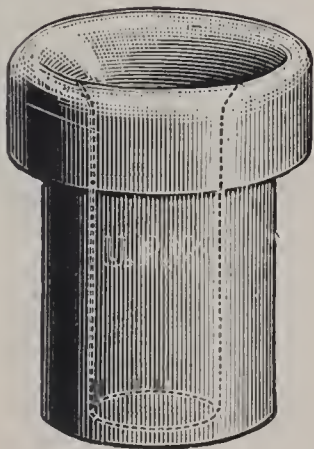
PORCELAIN INSULATORS—Continued.

CUTS FULL SIZE.



No. 80. Base is countersunk and has two holes for screws.

Trade Word.  
Categorize .....per 1000, \$40 00



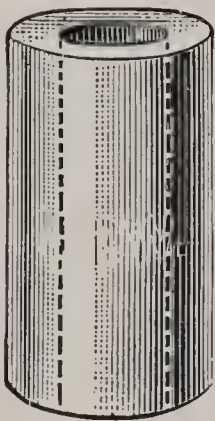
No. 40.

Trade Word.  
Category..... per 1000, \$16.00



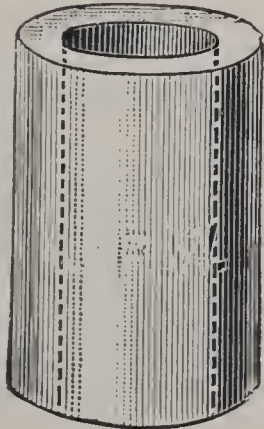
No. 14.

Trade Word.  
Cauterize..per 1000, \$8.00



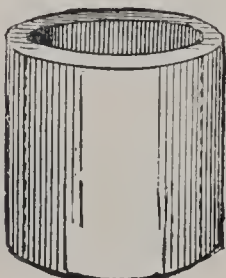
No. 15.

Trade Word.  
Catenary.....per 1000, \$12.00



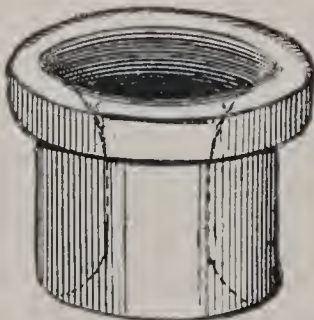
No. 16.

Trade Word.  
Catenation.....per 1000 \$18.00



No. 17.

Trade Word.  
Cavalcade..per 1000, \$12.00



No. 18.

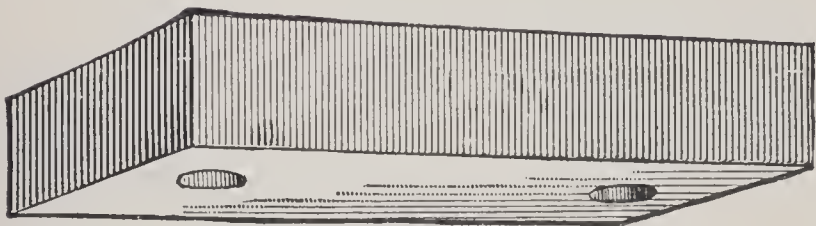
Trade Word.  
Cater.....per 1000 \$9.60

For Explanation of Trade Word see page 4.

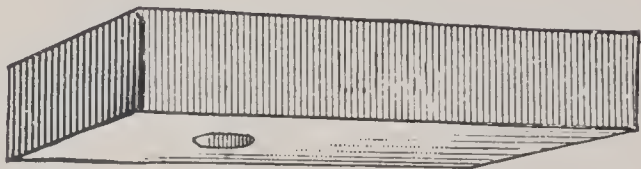


CONSTRUCTION MATERIAL.

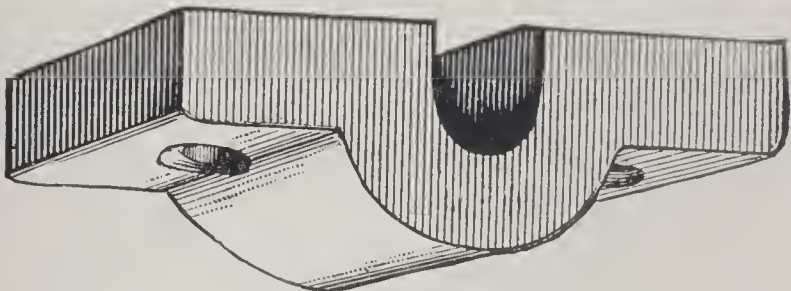
PORCELAIN CLEATS.



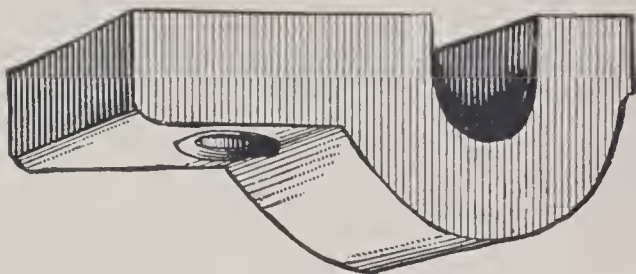
No. 39 (Base for No. 32).



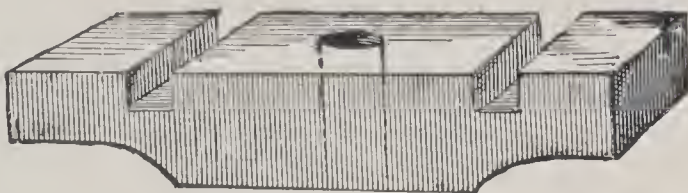
No. 31 (Base for No. 33).



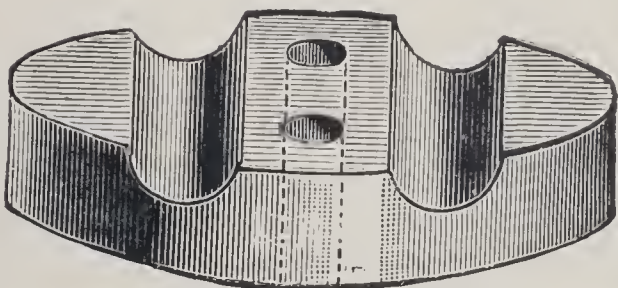
No. 32.



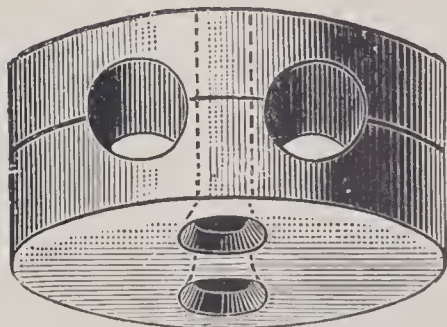
No. 33.



No. 34.



No. 22.



No. 23.

Nos. 22 and 23 can be used singly, as shown in No. 22, or two pieces, which are alike, can be used together as shown in No. 23.

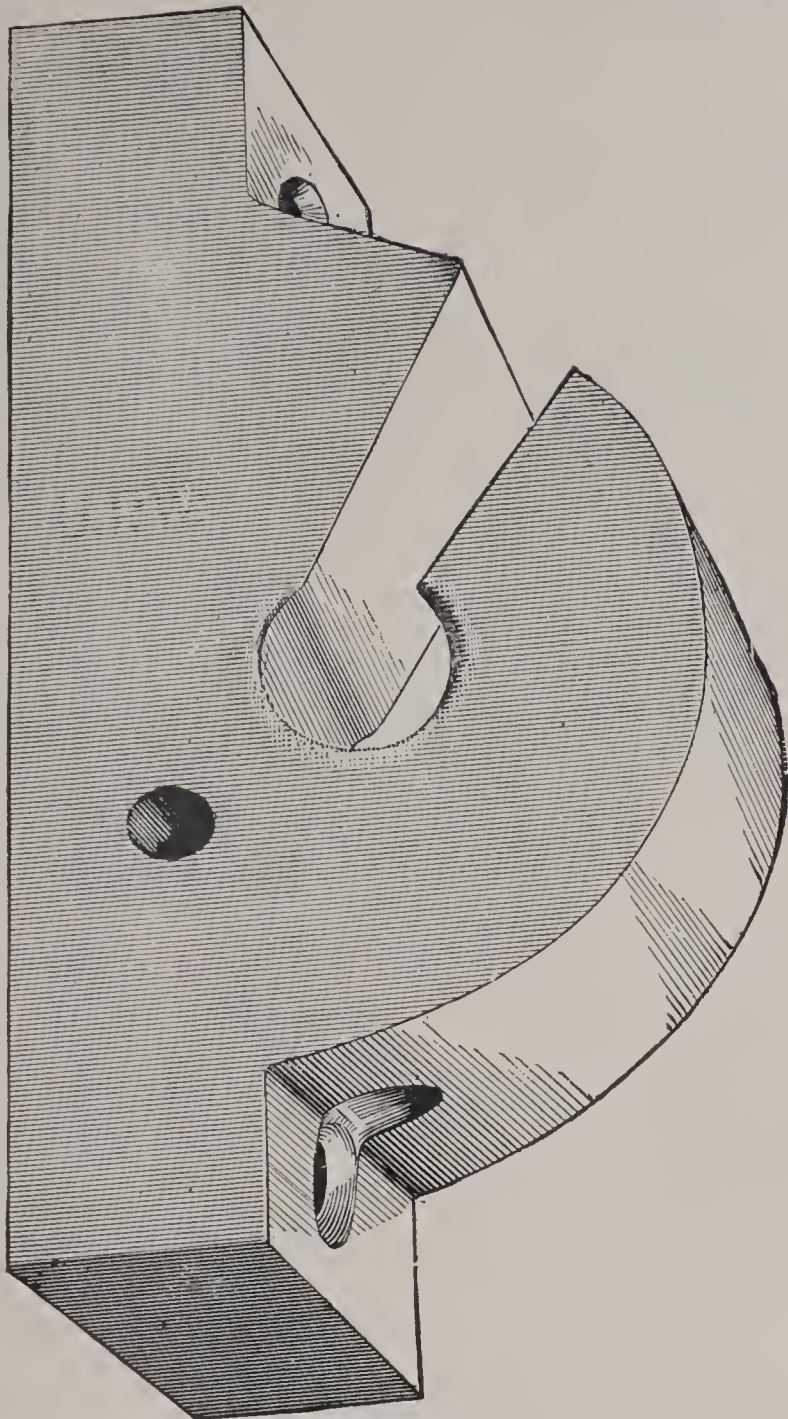
Trade Word.		Price.	
Caterer.	No. 34.....	per 1,000,	\$10.40
Caterman.	“ 39.....	“	12.60
Caterpillar.	“ 32.....	“	15.20
Caterwaul.	“ 31.....	“	9.40
Catgut.	“ 33.....	“	12.00
Cathedral.	“ 22.....	“	20.00
Catholic.	“ 23 (single pieces).....	“	11.00

For Explanation of Trade Word see page 4.

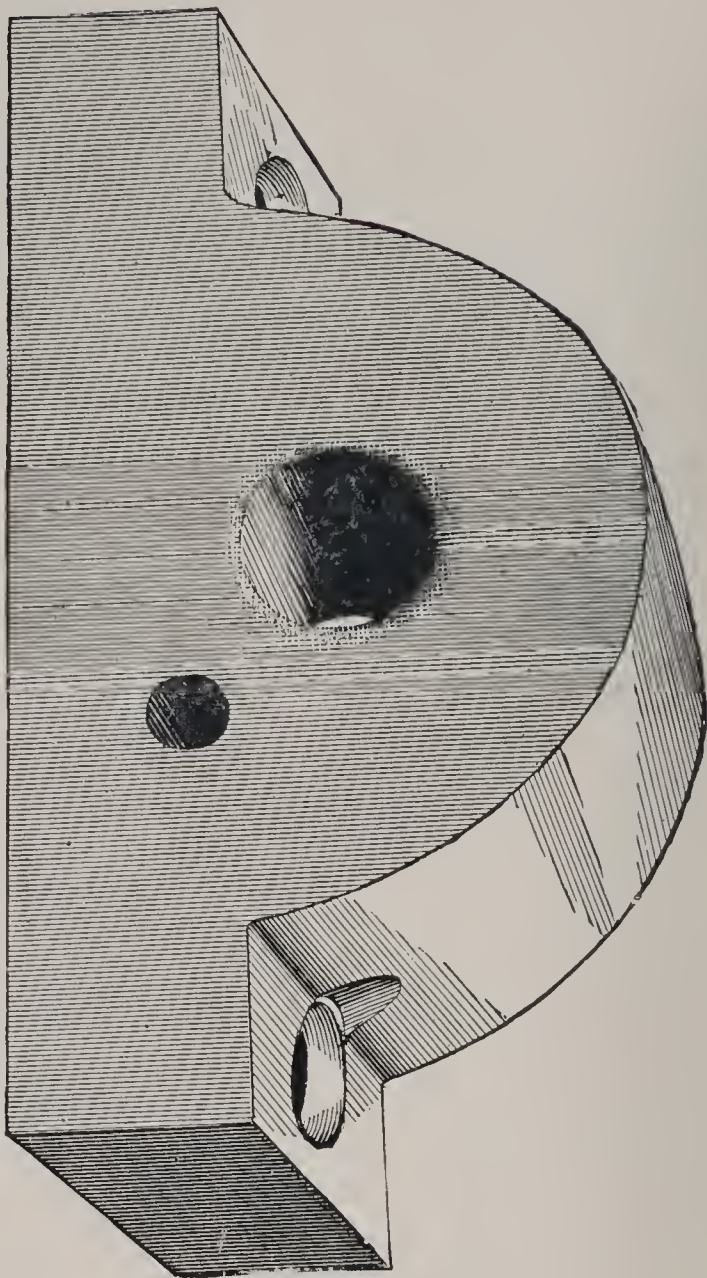


CONSTRUCTION MATERIAL.

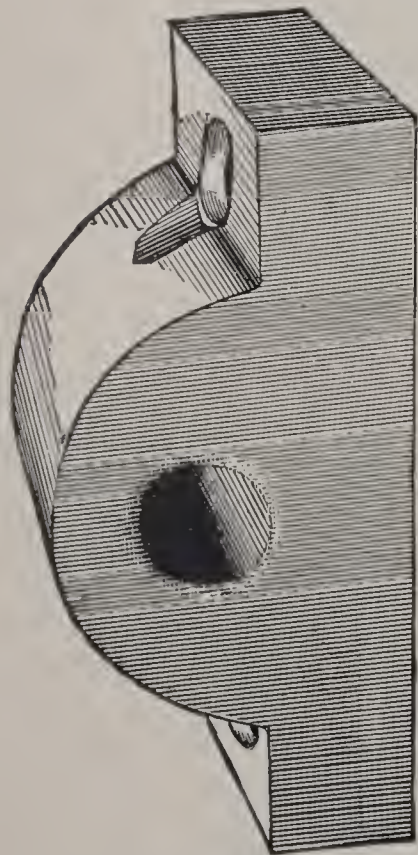
PORCELAIN BRACKETS.



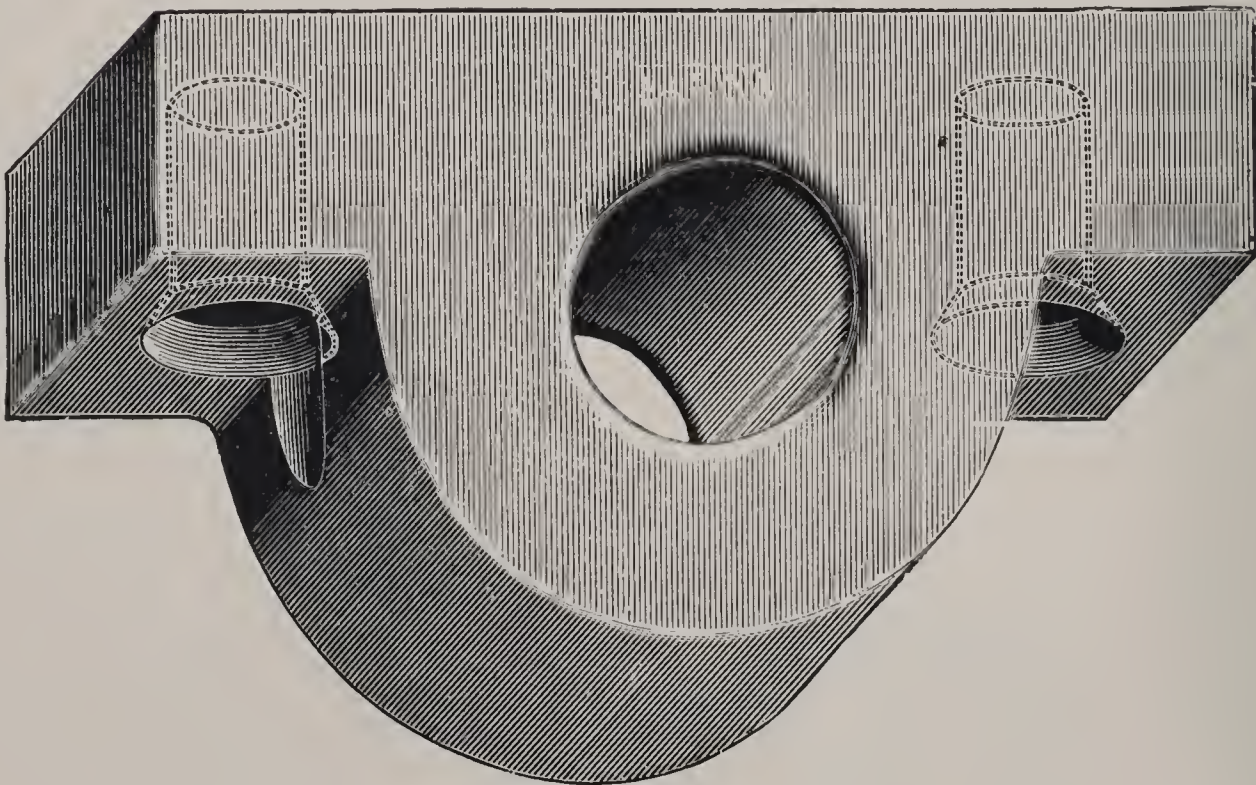
No. 28.



No. 27.



No. 26.



No. 30.

Trade Word.	No.		Price.
Caveat.	26.....	per 1000, \$	37.00
Cavern.	27.....	"	120.00
Cavernous.	28.....	"	200.00
Cavil.	30.....	"	120.00

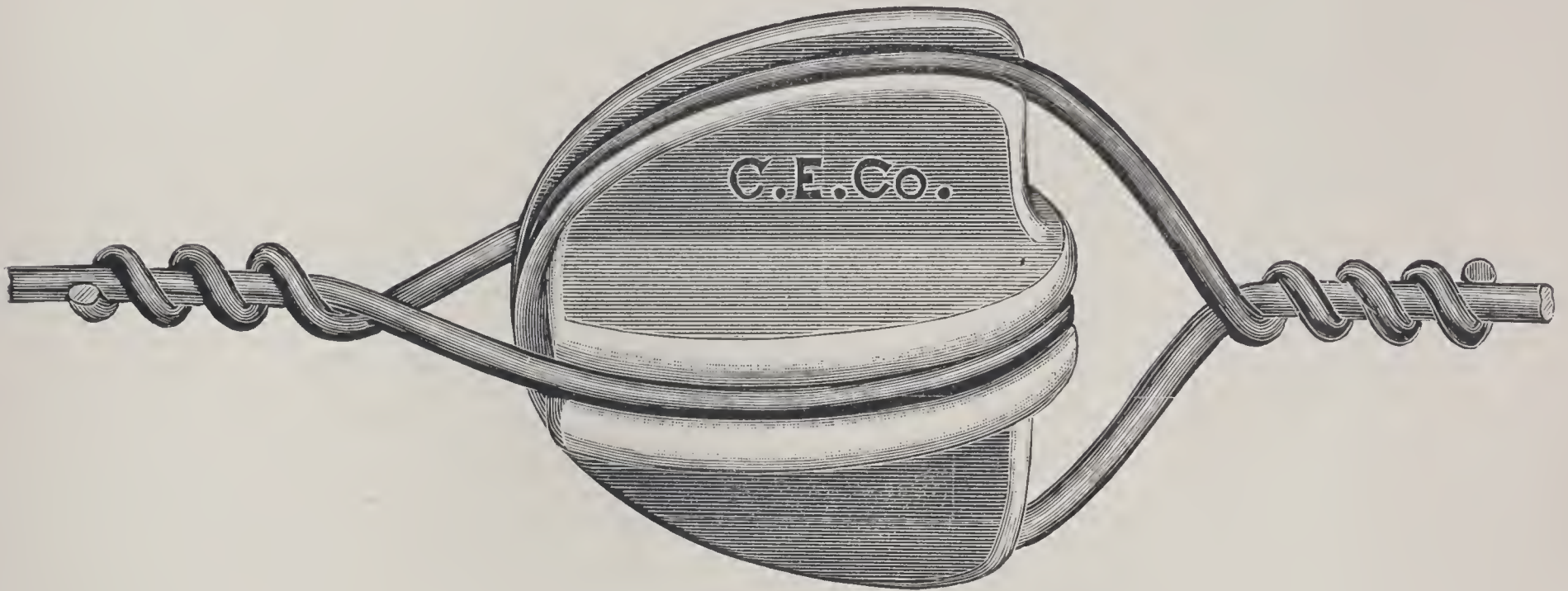
For Explanation of Trade Word see page 4.



## CONSTRUCTION MATERIAL.

### THE BAIN BREAK INSULATOR (PORCELAIN).

CUT FULL SIZE.



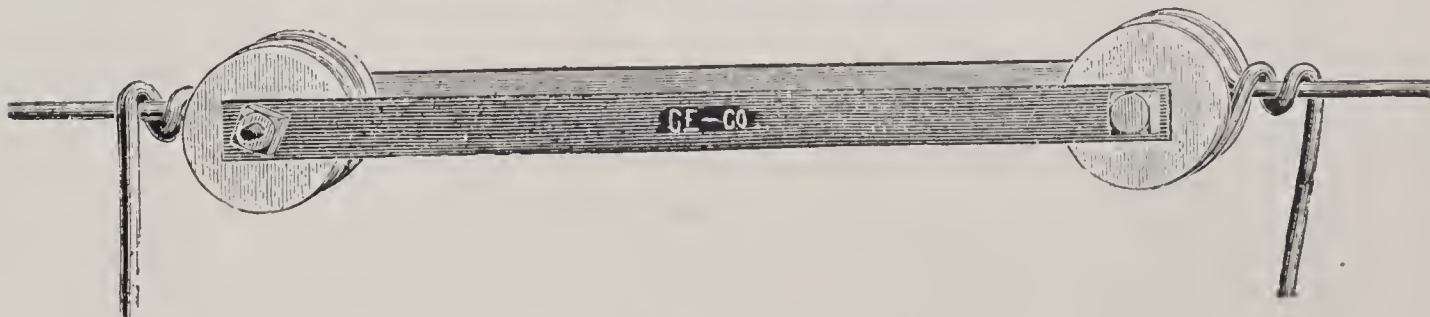
We present above a cut of a new form of Break Insulator, that for simplicity, strength and perfect adaptability, must commend itself at once to all practical construction men. The Insulator is made of a single piece of porcelain, carefully glazed, and is especially useful in suspending arc lamps, insulating guy wires, insulating span wires in electrical railroad work; while as a simple Break Insulator for overhead circuits it has no equal.

Trade Word.

Cavity.....per 100, \$10.00

Price.

### CIRCUIT LOOP BREAK.



FOR LOOPING IN ANY PART OF CIRCUIT.

Trade Word.

Caw.....each, \$0.50

Price.

For Explanation of Trade Word see page 4.

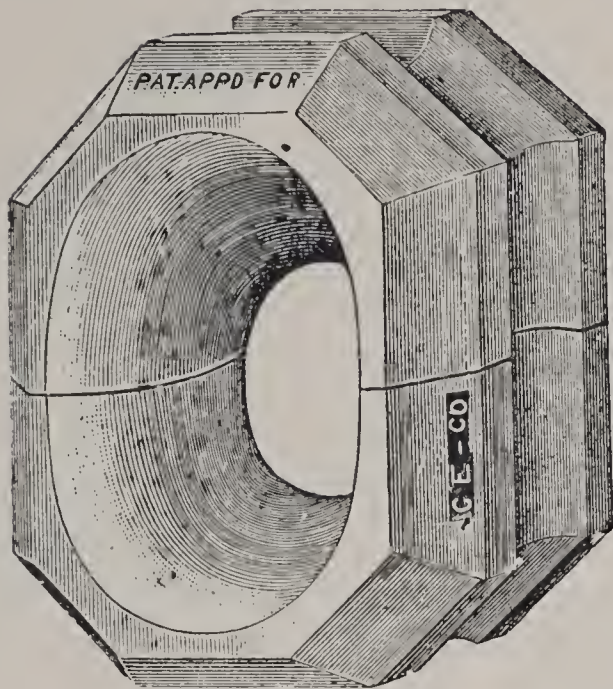


CONSTRUCTION MATERIAL.

THE VICTOR SPLIT INSULATOR.

VICTOR INSULATOR HANGER.

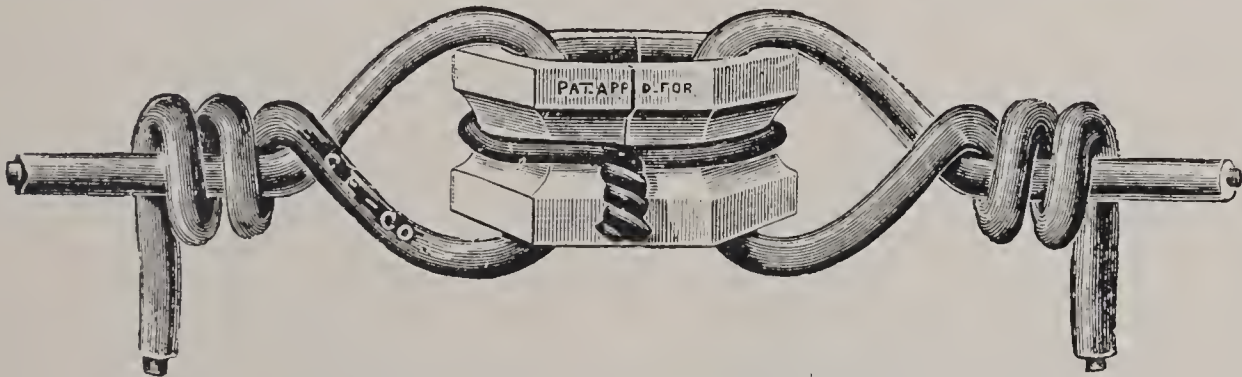
CUT FULL SIZE.



The "Victor" Split Insulator has the especial merit of being provided with an opening to accommodate the largest wires, perfectly smooth bearing and locking lugs, that prevent any torsion of the two parts which may be bound together either by the "Victor Insulator Hanger" or ordinary iron or copper line wire of a size adapted to the strength required for any given service, or as may be most convenient. Being in two parts they can be put upon a line already erected equally as well as upon a new one; and for taking up sag, and for "Guys" and "hauling off" purposes, they are the only thing of any value now in the market. They may be used to increase the capacity of cross arms by suspending them beneath. On elevated road structures and in tunnel work they are particularly useful.

Trade Word.	Price.	Trade Word.	Price.
Cawing. Insulators.....per 100,	\$20.00	Ceased. Hangers, 6 in. long.....per 100,	\$7.00
Cease. Hangers, 2 in. long.....	6.00		

SOME APPLICATIONS OF THE VICTOR SPLIT INSULATOR.

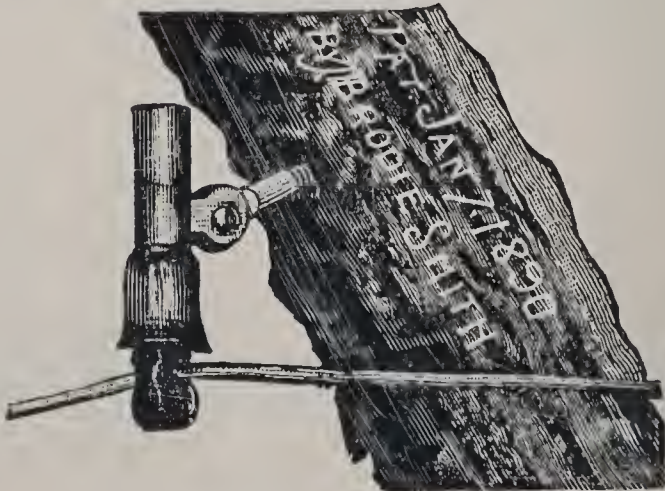


Used singly as a "Circuit Breaker."



Used with a Victor Hanger as a "Tree Insulator."

THE BRODIE TREE INSULATOR.



Can be adjusted to any angle to suit tree or limb to which it is attached. This is a very practicable tree insulator.

Trade Word.	Price.
Ceaseless. . . . .	each, \$1.00

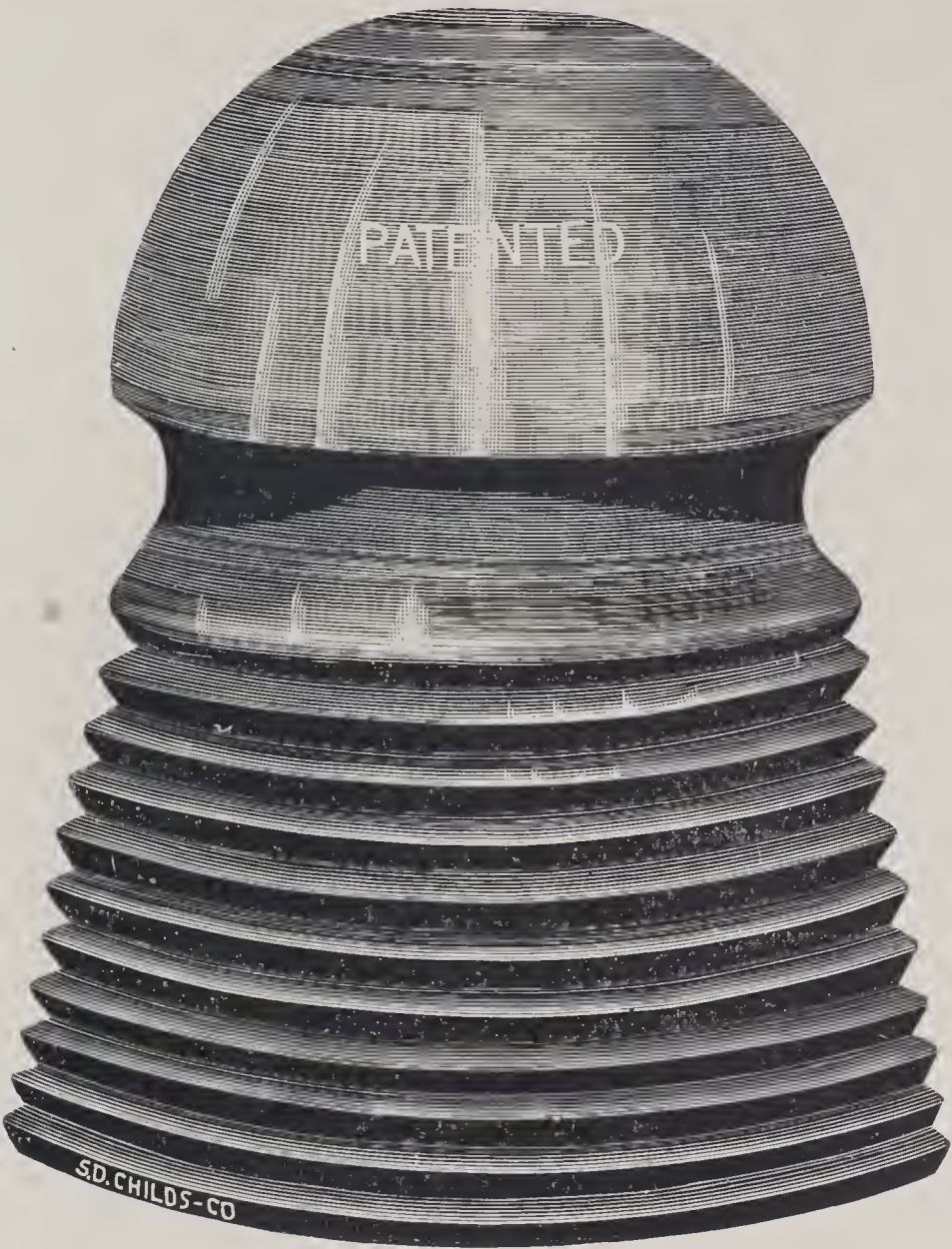
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

CLASS INSULATORS.

THE BAIN HIGH-RESISTANCE INSULATOR.



In presenting this Insulator to the trade, we feel that we are providing one that will at once become one of the standard articles in electrical construction. The Insulator is made extra strong, and is especially adapted to heavy work, such as carrying large primary wires, but more particularly feeder wires for electric railroad work. The corrugations, which are made both inside and outside of the apron, increase the distance from the wire to the pin fully 100 per cent., and we claim that water will, in passing over the edges of the rings, become thin and broken, and should it reach the under side of the glass it will drop off, rather than creep up to the pin. Another point in favor of this form of Insulator is, that the many surfaces will reflect the light under the glass in such a way as to keep insects out, obviating a source of much annoyance where plain dark glass is employed. This Insulator can also be used to advantage to indicate the alternating from direct current circuits when both are used on one line of poles, the Bain Insulator, by its peculiar form, showing the circuit needing the highest insulation.

The manufacturing cost of this improved Insulator is slightly in advance of that of the old style, but we feel that a few cents more per mile will not be an objection where the lasting benefits are so great, and where first-class construction is desired.

This Insulator is patented, and infringers will be prosecuted.

Trade Word.	Price.
Ceases .....	per 1000, \$80.00

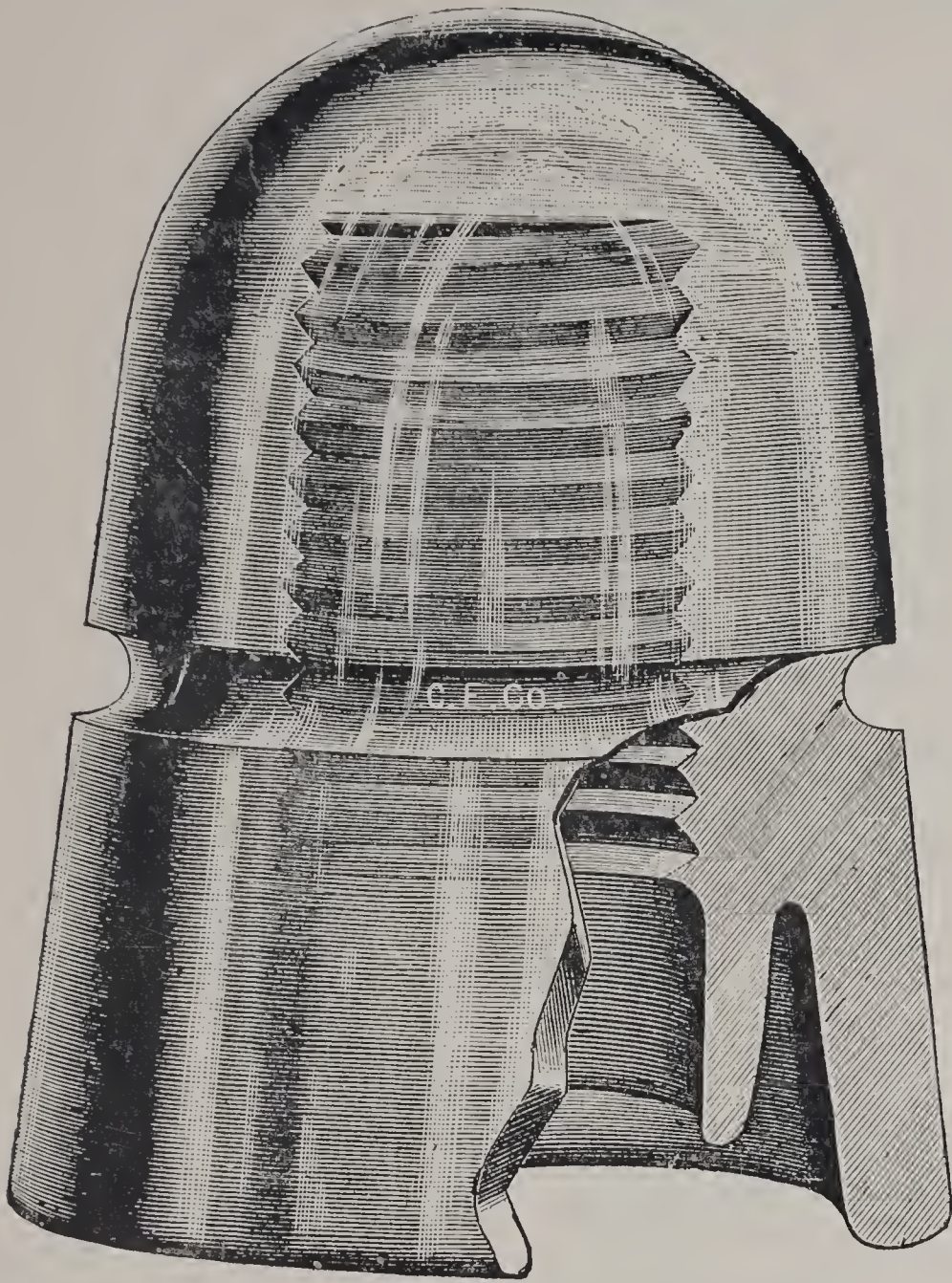
For Explanation of Trade Word see page 4.



# CONSTRUCTION MATERIAL. GLASS INSULATORS.

WESTERN UNION DOUBLE PETTICOAT.

STREET RAILWAY, DEEP GROOVE DOUBLE PETTICOAT.

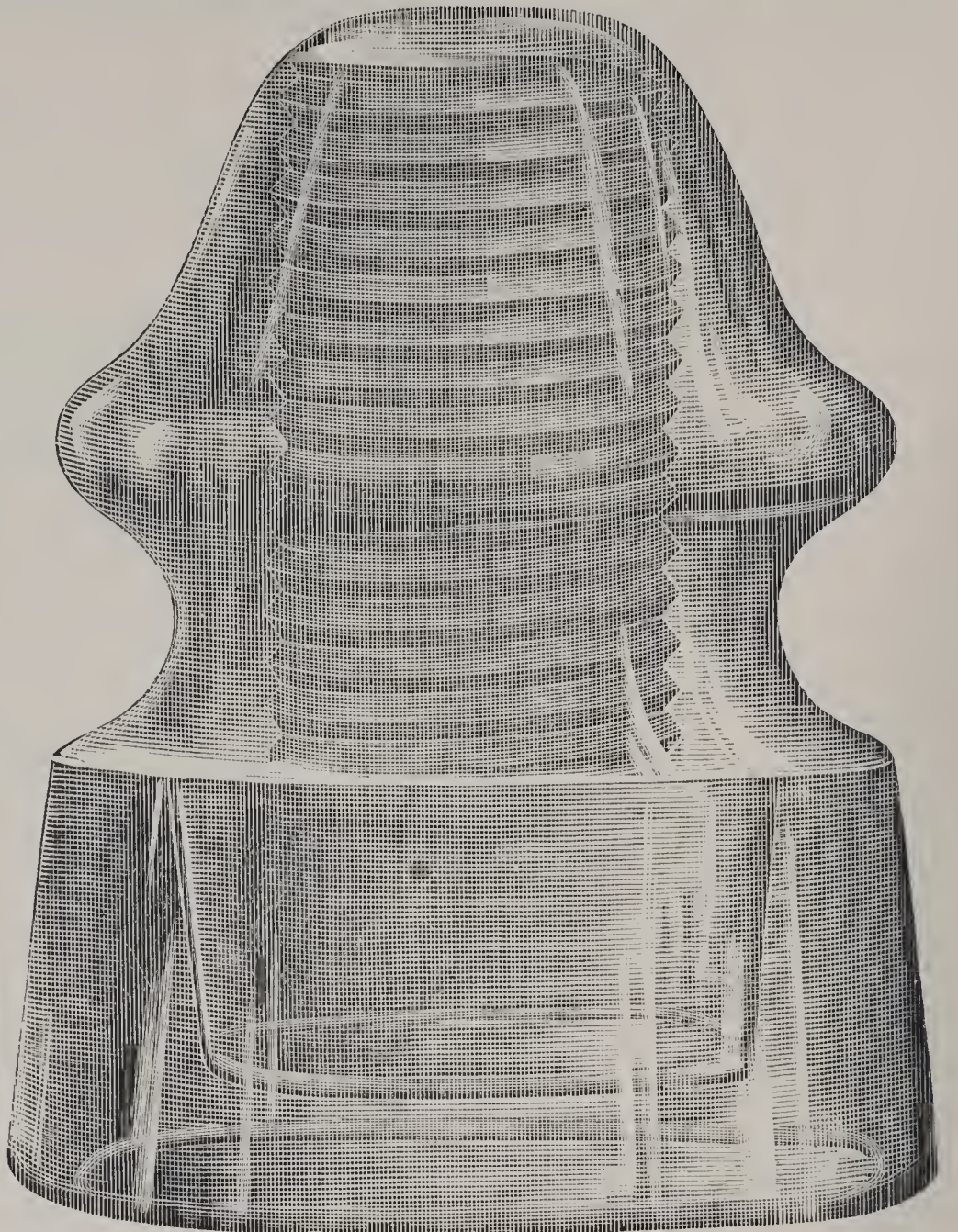


Trade Word.  
Ceasing.....per 1000, \$80.00

Cut full size.

Price.

THE DEEP GROOVE DOUBLE PETTICOAT PATTERN.

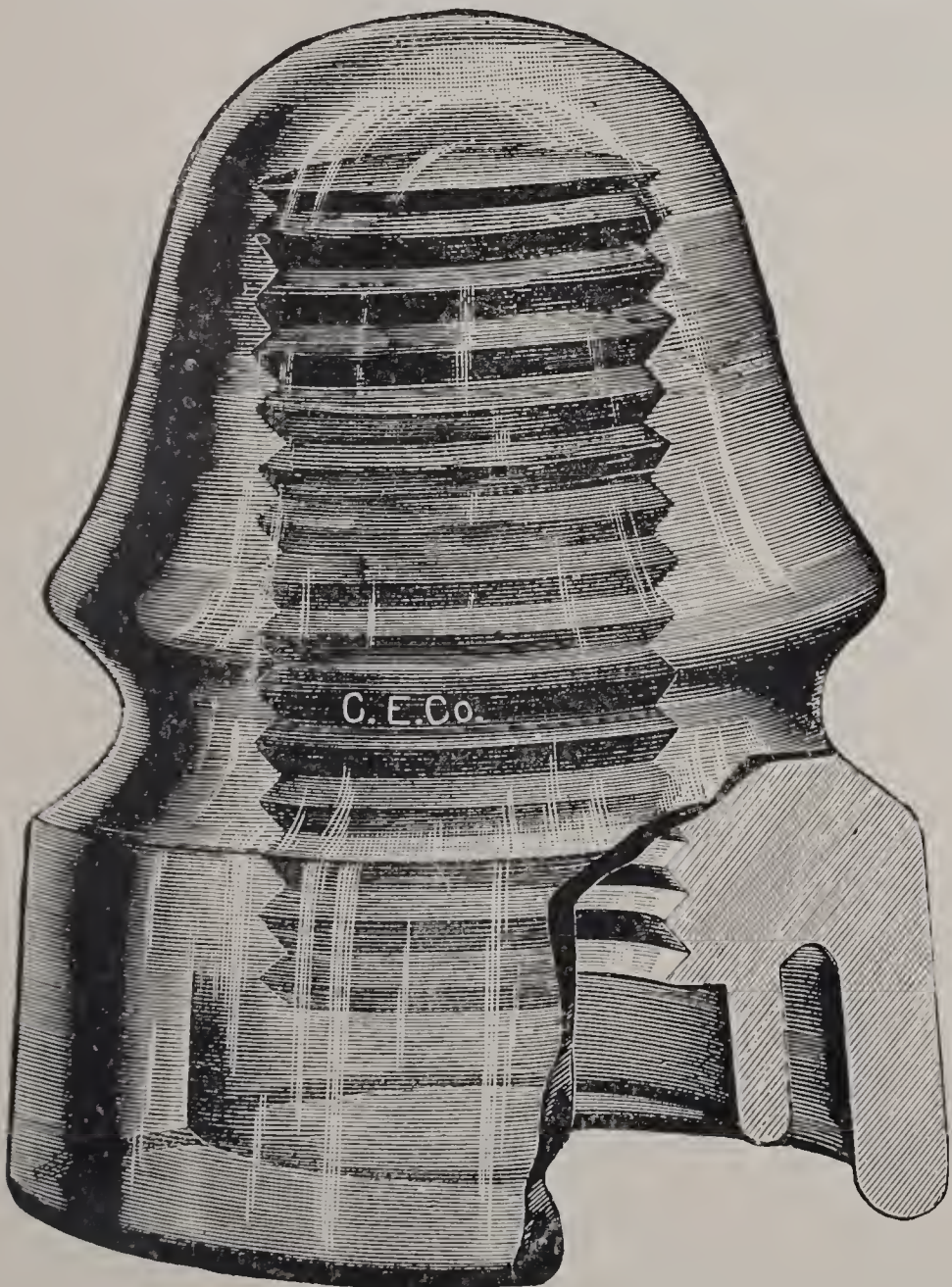


Trade Word.  
Cedar. Takes a 3/4 inch cable.....per 1000, \$80.00

Cut full size.

Price.

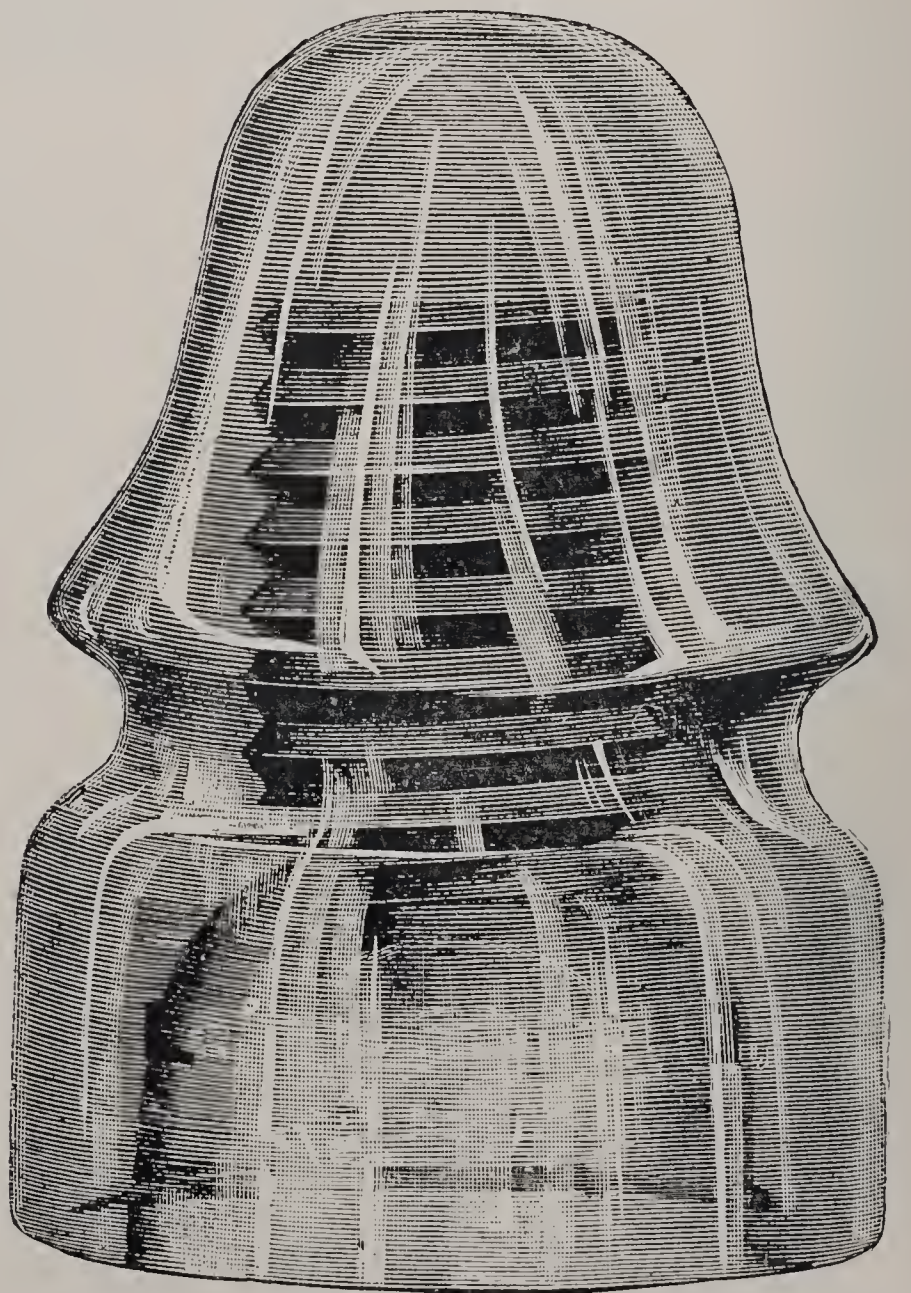
THE DEEP GROOVE PATTERN.



Trade Word.  
Cede.....per 1000, \$75.00

Cut full size.

Price.



Trade Word.  
Ceded.....per 1000, \$60.00

Cut full size.

Price.

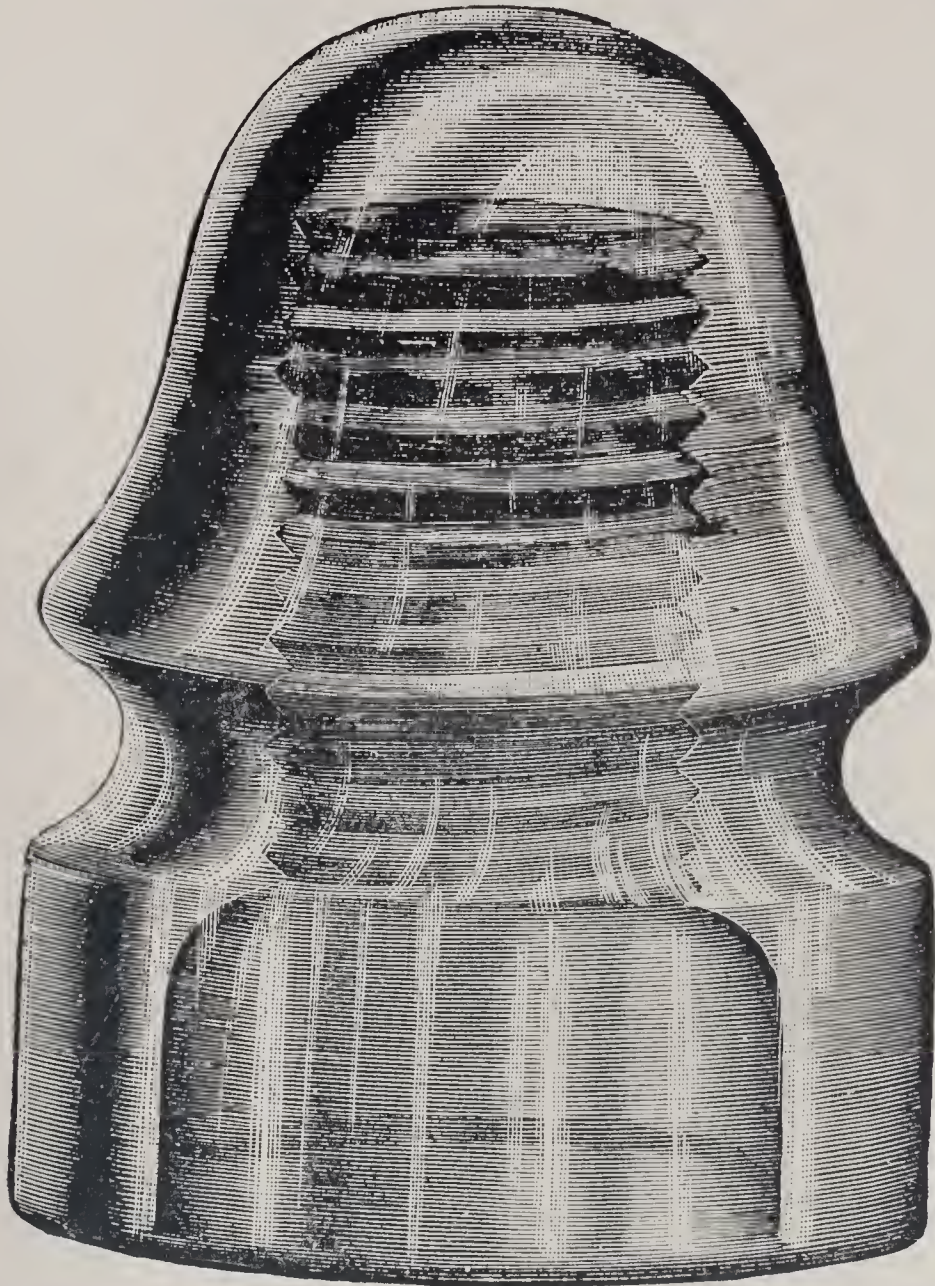
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

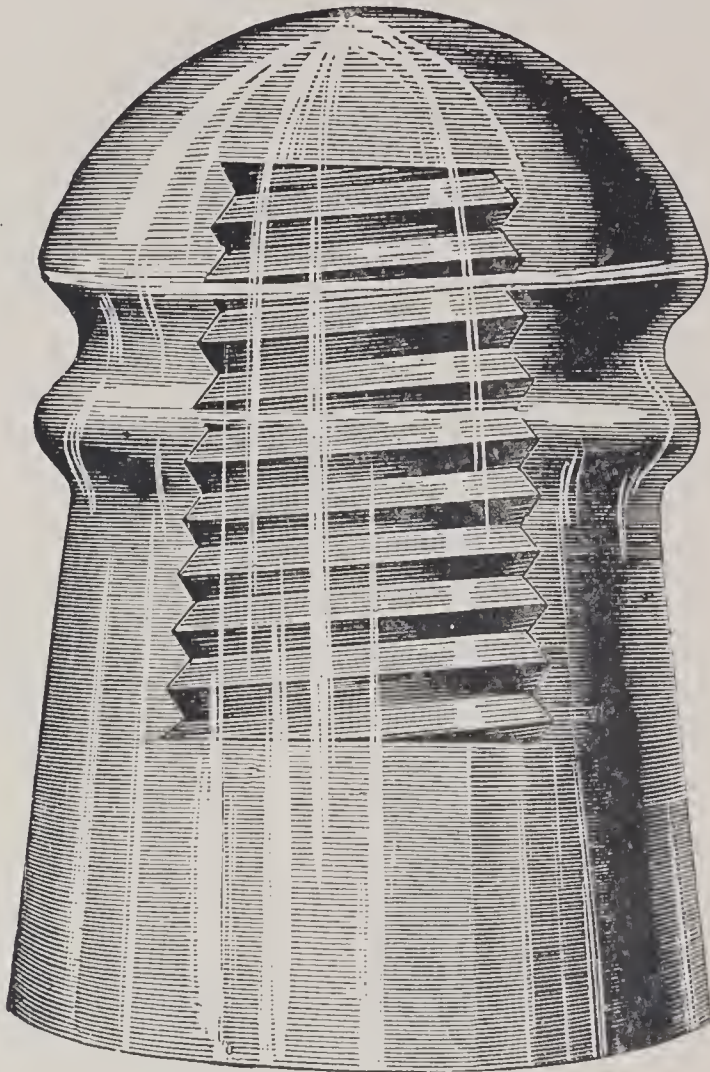
CLASS INSULATORS.

REGULAR No. 3 INSULATOR.

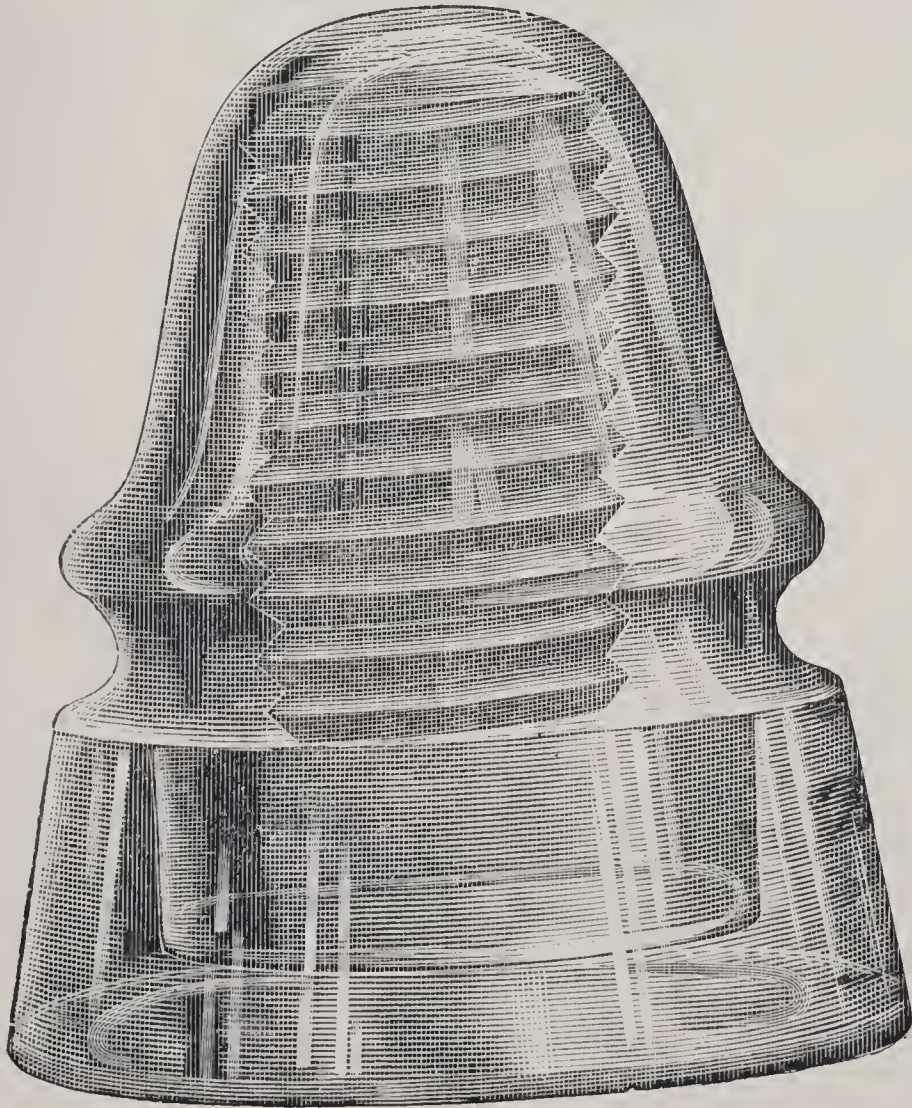


Trade Word. Cut Full Size. Price.  
Celebration.....per 1,000, \$60.00  
**DEEP GROOVE, DOUBLE PETTICOAT, PONY.**

THE "PONY" PATTERN SCREW CLASS INSULATOR.

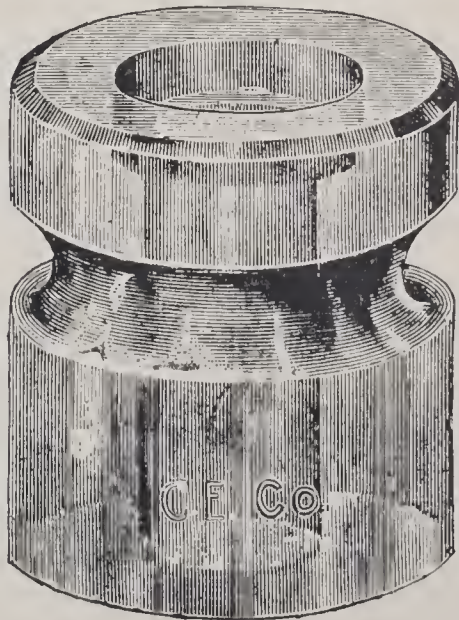


Trade Word. Cut Full Size. Price.  
Ceding.....per 1,000, \$45.00



**FOR TELEPHONE AND LIGHT ELECTRIC LIGHT WIRING.**  
Trade Word. Price.  
Celebrate.....per 1,000, \$50.00

CLASS INSULATING KNOB.



The advantage of using this insulator in damp places will be readily appreciated. Unlike porcelain, the insulating qualities would not be damaged should the insulator be cracked or broken.

It is made in two sizes, which are the same as Nos. 4 and 5 in porcelain. The No. 5 can be used for a circuit breaker as well as an insulator, as it is deeply countersunk at both ends.

Trade Word. Price.  
Celebrated. No. 4, Glass.....per 100, \$2.00  
Celebrating. " 5, " ..... " 3.00

**For Explanation of Trade Word see page 4.**



# CONSTRUCTION MATERIAL.

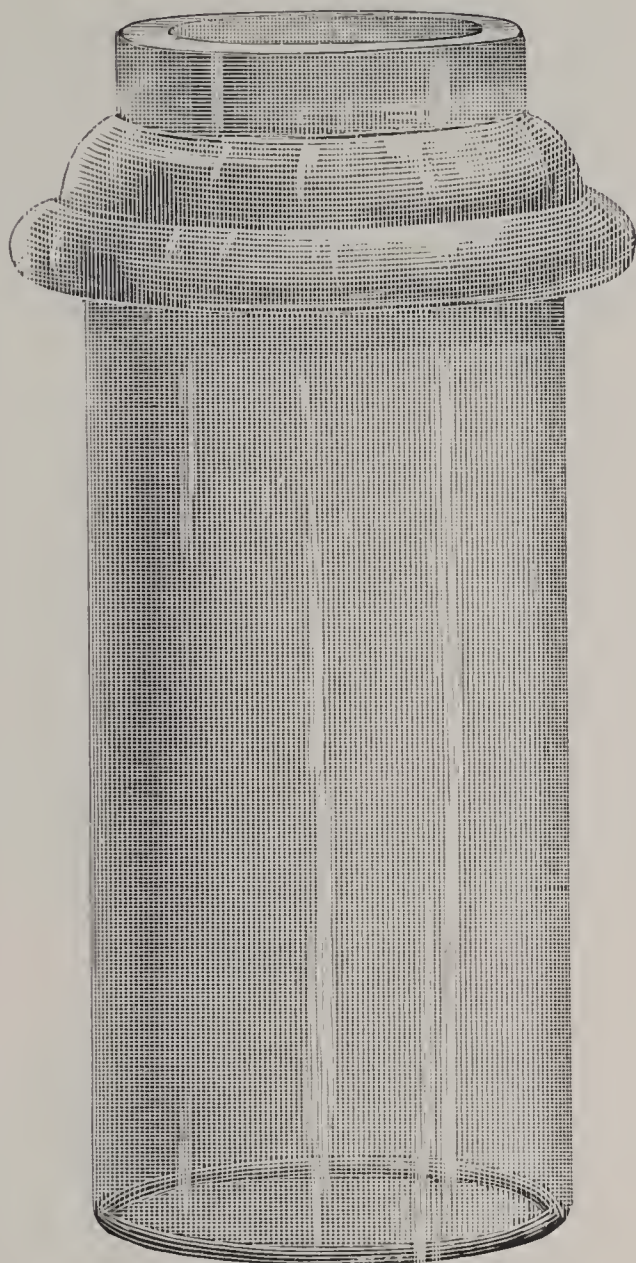
## CLASS FLOOR INSULATORS.

4-INCH FLOOR INSULATOR.  
Cut Full Size.



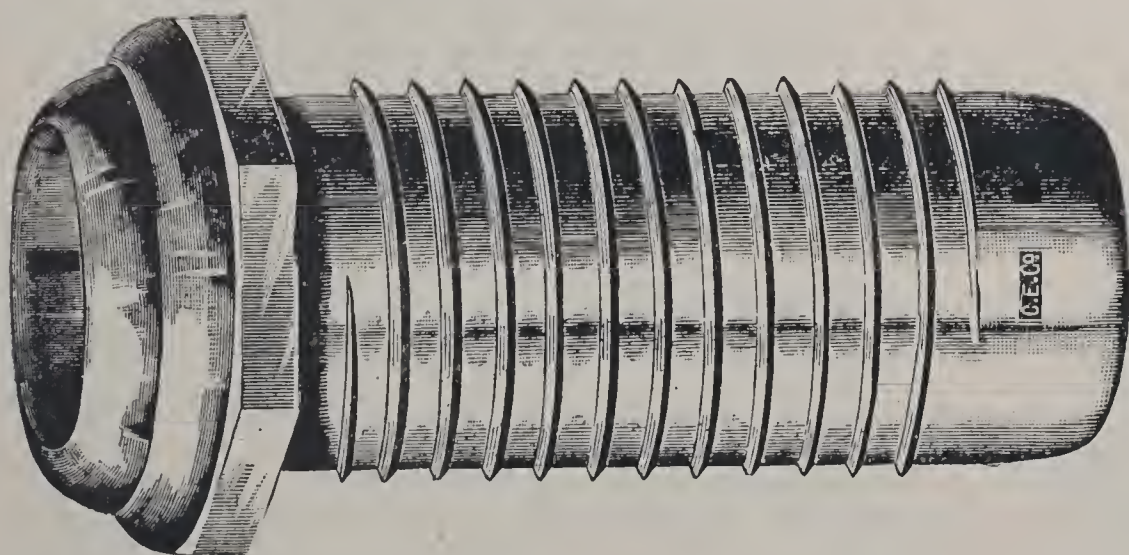
Trade Word.	Price.
Celestial. ....	each, \$0.12

3-INCH FLOOR INSULATOR.  
Cut Full Size.



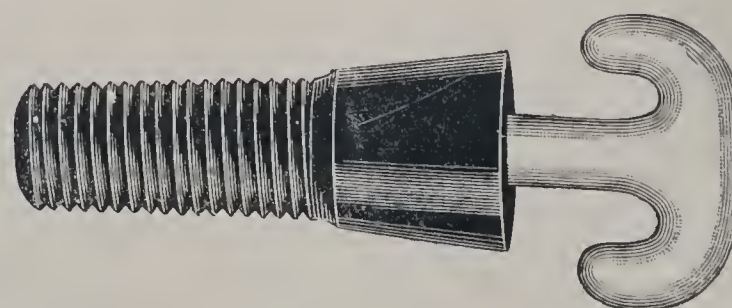
Trade Word.	Price.
Celebrity. 3-inch. ....	each, \$0.10
Celerity. 3½-inch. ....	.11

SCREW CLASS FLOOR INSULATOR.  
Also used as Window Tube for Heavy Electric Light Wires.  
Cut full size.



Trade Word.	Price.
Celibacy. ....	each, \$0.12

RUBBER HOOK INSULATOR.



Trade Word.	Price.
Celibate. ....	each, \$0.15

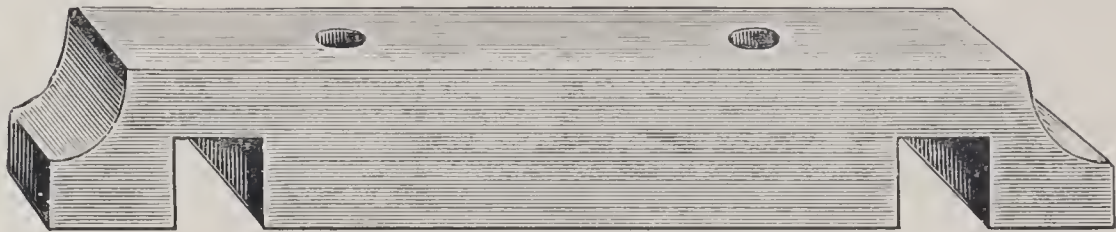
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

WOOD CLEATS—Finely Finished.

Unless otherwise specified, we will ship the two-wire cleats on all orders. We carry a full line of one and three-wire cleats, and are prepared to furnish special sizes on short notice.



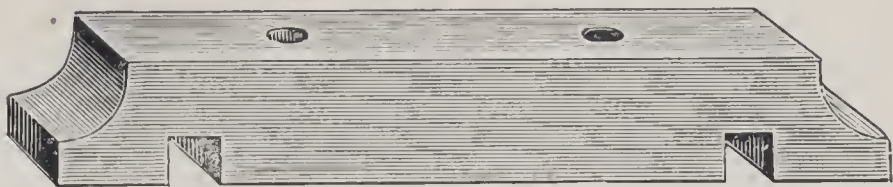
For Nos. 00 to 5 Insulated Wire.

Trade Word.			Price.
Cemetery.	Dimensions	$6 \times \frac{7}{8} \times \frac{3}{4}$ in., $\frac{1}{2}$ -in. slot.....	per 1,000, \$10.00



For Nos. 6 and 7 Insulated Wire.

Trade Word.			Price.
Cenotaph.	Dimensions	$5 \times \frac{3}{4} \times \frac{5}{8}$ in., $\frac{3}{8}$ -in. slot.....	per 1,000, \$9.00



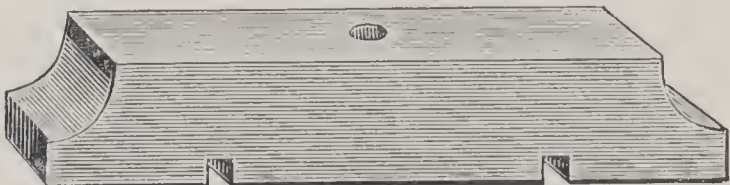
For Nos. 8 to 15 Insulated Wire.

Trade Word.			Price.
Censor.	Dimensions	$4 \times \frac{1}{2} \times \frac{1}{2}$ in., $\frac{5}{16}$ -in. slot.....	per 1,000, \$8.50



For Nos. 16 to 20 Insulated Wire.

Trade Word.			Price.
Censorial.	Dimensions	$4 \times \frac{1}{2} \times \frac{1}{2}$ in., $\frac{1}{4}$ -in. slot.....	per 1,000, \$8.00
Censorious.	“	$4 \times \frac{1}{2} \times \frac{1}{2}$ in., $\frac{3}{16}$ -in. slot.....	“ 8.00



For Nos. 16 to 20 Insulated Wire.

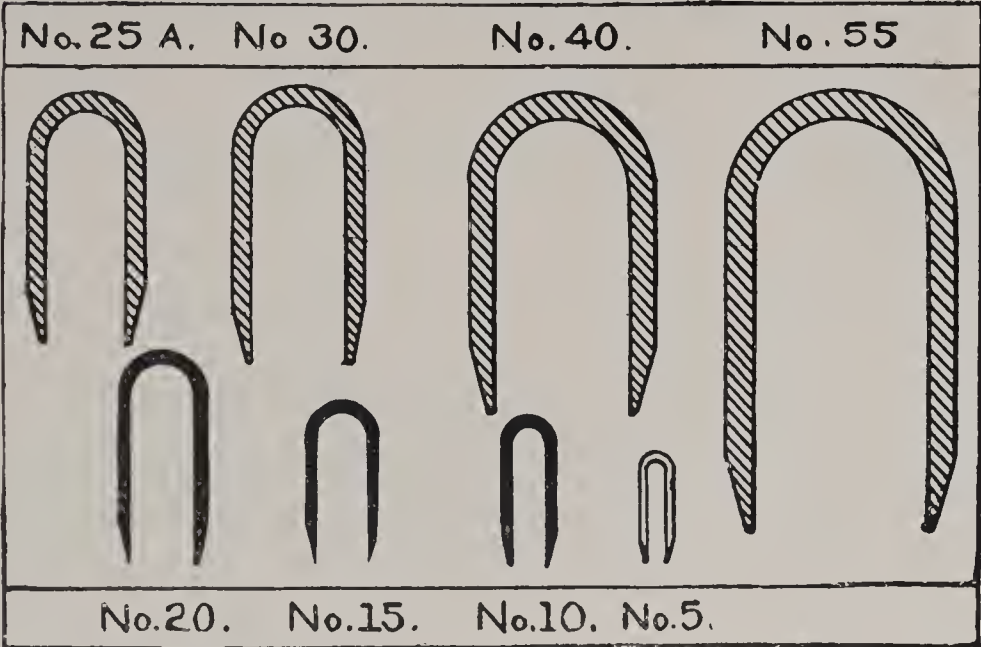
Trade Word.			Price.
Censorship.	Dimensions	$4 \times \frac{1}{2} \times \frac{1}{2}$ in., $\frac{1}{8}$ -in. slot, for one nail.....	per 1,000, \$8.00
Censurable.	“	$4 \times \frac{1}{2} \times \frac{1}{2}$ in., $\frac{1}{8}$ -in. slot, for two nails.....	“ 8.00

For Explanation of Trade Word see Page 4.



CONSTRUCTION MATERIAL.

THE "SAFETY" INSULATING STAPLE.

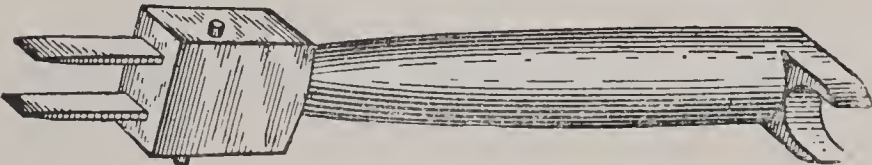


A safe staple to be used in fastening Electric Light and all High Pressure Conductors to Moulding, Timber, Back-boards, Switch-boards, etc., especially in basements and places liable to moisture. Iron staples cut the insulation, inducing leakage. Electrolytic action is set up between the copper and the iron, the copper is gradually transferred through the covering and deposited around the staple, and the conductor is eaten away. With the Safety Insulating Staple, made of specially prepared insulating material, there can be no cutting of the insulation, but rather the insulation is reinforced. The Underwriters heartily commend this staple.

Trade Word.	No.	Price.	Trade Word.	No.	Price.
Census.	5.....per 1,000,	\$ 8.00	Centipede.	35.....per 1,000,	\$11.00
Centage.	10.....	8.50	Centralize.	40.....	11.50
Centaur.	15.....	9.00	Centrifugal.	45.....	12.00
Centenary.	20.....	9.50	Centripetal.	50.....	12.50
Centennial.	25.....	10.00	Century.	55.....	14.00
Centigrade.	30.....	10.50			

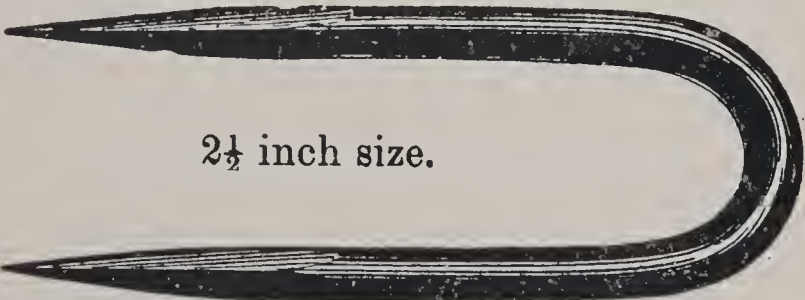
The numbers indicate in hundredths of an inch the outside diameter of the insulated wire the safety staples will fit. The staples are put up in boxes of 100, ten boxes in each package. In ordering, say whether Black, Gray or Red are wanted.

SAFETY DRIVING TOOL.



Trade Word.	Separate driving tools adapted to each size of staple.	Price.
Cerberus.....	.....each,	\$2.00

STAPLES.



Trade Word.	Size.	Price.	Trade Word.	Size.	Price.
Cereal.	3/4.....per gross,	\$ 2.40	Certificate.	2 1/2.....per gross,	\$ 4.70
Cerebral.	1.....	2.40	Certified.	2 3/4.....	5.30
Cerebrum.	1 1/4.....	2.40	Certify.	3.....	6.40
Ceremonial.	1 1/2.....	2.50	Certitude.	3 1/4.....	6.50
Ceremony.	1 3/4.....	3.00	Cessation.	3 1/2.....	7.40
Certain.	2.....	3.40	Cesspool.	4.....	10.50
Certainly.	2 1/4.....	4.00	Chafe.	4 1/2.....	13.00

Furnished in either Black Iron, Galvanized Iron, or Solid Brass, at the printed list. Discount for large quantities.

OFFICE WIRE STAPLES.



Trade Word.	No.	Price.	Trade Word.	No.	Price.
Chaffing.	1, for large office wire....per gross,	\$0.25	Chained.	3, Flat top.....	\$0.20
Chagrin.	2, for Annunciator ".....	.20	All sizes in bulk.....per lb.		50

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

HARD RUBBER.

AS GENERAL WESTERN AGENTS of the BUTLER HARD RUBBER Co., we beg to call the attention of all manufacturers of Electrical Goods, and the trade generally, to the fact that we are prepared to quote attractive prices on Hard Rubber manufactured under the patents granted to William Kiel in Sheet, Rod and Tube.

We take pleasure in commending these goods to the trade for the following reasons: Unlike Hard Rubber heretofore made, that made under the new patent process will be found to be of a rich, permanent black throughout. It admits of a superior polish, possesses greater flexibility and toughness and does not become brittle with age. All operations of cutting, sawing, turning and polishing can be performed with a large reduction in the wear and tear of tools and a considerable saving of labor. These new goods have been tested and approved by the leading electrical companies of the United States. We warrant this Hard Rubber to withstand the action of the weather, and for all classes of electric light construction, to possess the highest resistance and greatest strength of any rubber on the market.

HARD RUBBER TUBING.

Size of Full Length, 24 inches.

The standard sizes for Electric Light Construction are  $\frac{1}{4} \times \frac{3}{8}$  in.,  $\frac{1}{4} \times \frac{1}{2}$  in.,  $\frac{5}{16} \times \frac{1}{2}$  in.,  $\frac{3}{8} \times \frac{5}{8}$  in.,  $\frac{1}{2} \times \frac{3}{4}$  in.,  $\frac{5}{8} \times \frac{7}{8}$  in.,  $\frac{3}{4} \times 1$  in.,  $\frac{7}{8} \times 1\frac{1}{8}$  and  $1 \times 1\frac{1}{4}$  in., all of which we carry in large quantities. Unless otherwise specified, when only one dimension is given in ordering tube, we will understand that it refers to the inside measurement.

Trade Word.	Outside Diameter.	Inside Diameter.	Price per Pound.	Approximate Weight.	Trade Word.	Outside Diameter.	Inside Diameter.	Price per Pound.	Approximate Weight.
Chastizing.....	$\frac{1}{8}$ inch.	$\frac{1}{32}$ inch.	\$3.00	84 Tubes 1 lb.	Cheapness....	$\frac{5}{16}$ inch.	$\frac{1}{16}$ inch.	\$2.00	14 Tubes 1 lb.
Chastity.....	$\frac{1}{8}$ "	$\frac{1}{16}$ "	3.00	100 " 1 "	Cheating.....	$\frac{3}{8}$ "	$\frac{1}{8}$ "	2.00	10 " 1 "
Chat.....	$\frac{3}{8}$ "	$\frac{1}{32}$ "	3.00	44 " 1 "	Checker.....	$\frac{5}{8}$ "	$\frac{3}{8}$ "	2.00	4 <sup>2</sup> " 1 "
Chattel.....	$\frac{1}{6}$ "	$\frac{1}{8}$ "	3.00	52 " 1 "	Checkmate...	$\frac{5}{8}$ "	$\frac{3}{8}$ "	2.00	4 " 1 "
Chatter.....	$\frac{1}{6}$ "	$\frac{1}{32}$ "	2.50	35 " 1 "	Cheerful.....	$\frac{3}{8}$ "	$\frac{1}{16}$ "	2.00	14 " 1 "
Chatty.....	$\frac{1}{6}$ "	$\frac{1}{8}$ "	2.50	37 " 1 "	Cheerfulness..	$\frac{3}{8}$ "	$\frac{1}{4}$ "	2.00	4 " 1 "
Cheap.....	$\frac{1}{4}$ "	$\frac{1}{16}$ "	2.50	20 " 1 "	Cheerily.....	$\frac{3}{4}$ "	$\frac{1}{2}$ "	2.00	3 " 1 "
Cheapen.....	$\frac{1}{4}$ "	$\frac{1}{8}$ "	2.50	28 " 1 "	Cheerfully....	1 "	$\frac{1}{2}$ "	2.00	2 <sup>2</sup> " 1 "
Cheapened. ..	$\frac{1}{2}$ "	$\frac{1}{4}$ "	2.50	5 <sup>2</sup> " 1 "	Cheering.....	1 "	$\frac{3}{4}$ "	2.00	2 " 1 "
Cheaply.....	$\frac{5}{16}$ "	$\frac{3}{8}$ "	2.50	19 " 1 "	Cheeringly ...	$1\frac{1}{8}$ "	$\frac{1}{8}$ "	2.00	2 " 1 "
Cheapman.....	$\frac{1}{2}$ "	$\frac{5}{16}$ "	2.50	5 " 1 "	Cheerless.....	$1\frac{1}{4}$ "	$\frac{3}{4}$ "	2.00	1 " $\frac{3}{4}$ "
					Cheese.....	1 $\frac{1}{4}$ "	1 "	2.00	1 $\frac{1}{2}$ " 1 "

Special sizes furnished to order on short notice.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

HARD RUBBER.

The Hard Rubber Sheet and Rod listed below are also the product of the Butler Hard Rubber Company, for which we are General Western Agents, and the remarks on page 129 also apply to Sheet and Rod rubber. Our stock of both of these specialties is kept full so that shipments can be made with great promptness.

SHEET.

Size of Full Sheets, 20 x 48 inches.

Trade Word.	Thickness (Stubbs' Gauge.)		Price per Pound.	Approximate Weight of Full Sheets.	Trade Word.	Thickness, (Stubbs' Gauge.)	Diameter in Inches.	Price per Pound.	Approximate Weight of Full Sheets.
Chairman. ....	24 Gauge.	.....	\$3.00	14 oz.	Change .....	10 Gauge.	$\frac{1}{8}$ inch.	2.00	5 $\frac{1}{2}$ lb.
Chaldron.....	23 "	.....	3.00	1 lb.	Changeable...	9 "	$\frac{3}{32}$ "	2.00	6 "
Chalk .....	22 "	$\frac{1}{32}$ inch.	2.25	1 $\frac{1}{8}$ "	Changeling ...		$\frac{1}{16}$ "	2.00	7 $\frac{1}{2}$ "
Challenge. ....	21 "	.....	2.25	1 $\frac{3}{8}$ "	Channel.....		$\frac{1}{4}$ "	2.00	10 $\frac{1}{2}$ "
Challenging ...	20 "	.....	2.00	1 $\frac{1}{2}$ "	Chant.....		$\frac{1}{8}$ "	2.00	13 $\frac{1}{4}$ "
Chamber .....	19 "	.....	2.00	1 $\frac{5}{8}$ "	Chanter.....		$\frac{3}{8}$ "	2.00	16 $\frac{1}{2}$ "
Chamberlain...	18 "	.....	2.00	2 "	Chase... ..		$\frac{1}{2}$ "	2.00	18 $\frac{3}{4}$ "
Champ .....	17 "	.....	2.00	2 $\frac{1}{4}$ "	Chaotic.....		$\frac{1}{2}$ "	2.00	22 "
Champagne ...	16 "	$\frac{1}{16}$ inch.	2.00	2 $\frac{3}{4}$ "	Chap.....		$\frac{9}{16}$ "	2.00	24 "
Champion .....	15 "	.....	2.00	2 $\frac{7}{8}$ "	Chapel .....		$\frac{5}{8}$ "	2.00	27 "
Chance .....	14 "	.....	2.00	3 $\frac{3}{8}$ "	Chaperon.....		$\frac{3}{4}$ "	2.00	32 "
Chancellor.....	13 "	$\frac{3}{32}$ inch.	2.00	3 $\frac{7}{8}$ "	Chaplain ...		$\frac{7}{8}$ "	2.00	35 "
Chancery.....	12 "	$\frac{1}{10}$ inch.	2.00	4 $\frac{3}{8}$ "	Chaplet .....	1		2.00	40 "
Chandler.....	11 "	.....	2.00	5 $\frac{1}{4}$ "	Chapman.....	1 $\frac{1}{4}$		2.00	50 "

ROD.

Size of Full Lengths, 24 inches.

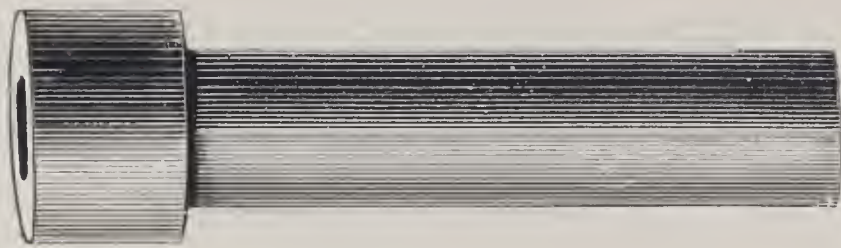
Trade Word.	Diameter.	Price per Pound.	Approximate Weight.	Trade Word.	Diameter.	Price per Pound.	Approximate Weight.
Chapter.....	$\frac{1}{8}$ inch.	\$2.00	74 Rods 1 lb.	Charnel.....	$\frac{7}{8}$ inch.	\$2.00	1 Rod 9 oz.
Character.....	$\frac{5}{32}$ "	2.00	42 " 1 "	Charred. ....	$\frac{15}{16}$ "	2.00	1 " 11 "
Charade.....	$\frac{3}{16}$ "	2.00	30 " 1 "	Chart. ....	1 "	2.00	1 " 13 "
Charcoal. ....	$\frac{1}{4}$ "	2.00	18 " 1 "	Charter. ....	1 $\frac{1}{8}$ "	2.00	1 " 1 lb.
Charge .....	$\frac{5}{16}$ "	2.00	13 " 1 "	Chartist.....	1 $\frac{1}{4}$ "	2.00	1 " 1 $\frac{1}{4}$ "
Charging .....	$\frac{3}{8}$ "	2.00	8 " 1 "	Chary. . . . .	1 $\frac{3}{8}$ "	2.25	1 " 1 $\frac{1}{2}$ "
Charily .....	$\frac{7}{8}$ "	2.00	6 " 1 "	Chase.....	1 $\frac{1}{2}$ "	2.25	1 " 1 $\frac{3}{4}$ "
Chariot .....	$\frac{1}{2}$ "	2.00	5 " 1 "	Chasing. ....	1 $\frac{5}{8}$ "	2.25	1 " 2 $\frac{1}{4}$ "
Charitable.....	$\frac{9}{16}$ "	2.00	4 " 1 "	Chasm .....	1 $\frac{3}{4}$ "	2.25	1 " 2 $\frac{1}{2}$ "
Charity .....	$\frac{5}{8}$ "	2.00	3 " 1 "	Chasten.....	2 "	2.25	1 " 3 $\frac{3}{8}$ "
Charlatan.....	$\frac{11}{16}$ "	2.00	1 " 6 oz.	Chasteness.....	2 $\frac{1}{4}$ "	2.25	1 " 4 $\frac{1}{8}$ "
Charm .....	$\frac{3}{4}$ "	2.00	1 " 7 "	Chastise.....	2 $\frac{1}{2}$ "	2.25	1 " 5 "
Charming.....	$\frac{13}{16}$ "	2.00	1 " 8 "				

These rods will take a very high polish and fine thread.  
For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

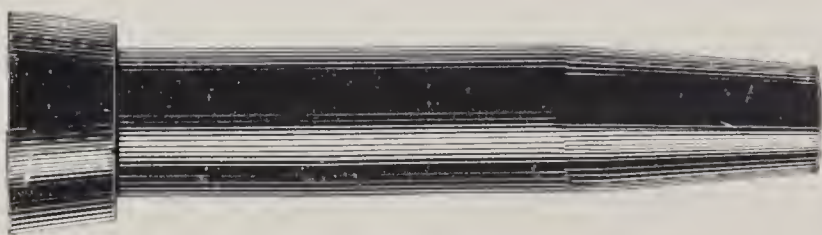
HARD RUBBER WINDOW TUBES.  
WITH HEADS.



PLAIN.

Cut shows No. 4 size.

Trade Word.	No.	1.	1½ in. long,	$\frac{7}{16}$	outside diameter,	$\frac{1}{4}$ in. hole.	per 100,	Price.
Chemical.	"	1.	1½ in. long,	$\frac{7}{16}$	outside diameter,	$\frac{1}{4}$ in. hole.	per 100,	\$4.00
Chemist.	"	2.	1½ "	$\frac{7}{16}$	"	$\frac{5}{16}$ "	"	4.00
Cherish.	"	3.	2½ "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	6.00
Cherished.	"	4.	2½ "	$\frac{1}{2}$	"	$\frac{5}{16}$ "	"	7.00
Cheroot.	"	5.	3 "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	8.00
Cherry.	"	6.	4 "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	10.00
Cherub.	"	7.	6 "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	16.00
Cherubim.	"	8.	3 "	$\frac{9}{16}$	"	$\frac{5}{16}$ "	"	12.00
Chestnut.	"	9.	4 "	$\frac{9}{16}$	"	$\frac{5}{16}$ "	"	16.00
Chevalier.	"	10.	6 "	$\frac{9}{16}$	"	$\frac{5}{16}$ "	"	22.00
Chew.	"	11.	8 "	$\frac{9}{16}$	"	$\frac{5}{16}$ "	"	28.00
Chewing.	"	12.	4 "	$\frac{5}{8}$	"	$\frac{3}{8}$ "	"	18.00
Chicanery.	"	13.	8 "	$\frac{5}{8}$	"	$\frac{3}{8}$ "	"	30.00
Chicken.	"	14.	12 "	$\frac{5}{8}$	"	$\frac{3}{8}$ "	"	48.00
Chickory.	"	15.	8 "	$\frac{3}{4}$	"	$\frac{1}{2}$ "	"	40.00
Chide.	"	16.	12 "	$\frac{3}{4}$	"	$\frac{1}{2}$ "	"	60.00
Chider.	"	17.	2½ "	$\frac{9}{16}$	"	$\frac{3}{8}$ "	"	8.00
Chiding.	"	18.	3 "	$\frac{9}{16}$	"	$\frac{3}{8}$ "	"	10.00
Chief.	"	19.	4 "	$\frac{3}{4}$	"	$\frac{1}{2}$ "	"	20.00



POLISHED.

Cut shows No. 4 size.

Trade Word.	No.	1.	1½ in. long,	$\frac{7}{16}$	in. outside diam.,	$\frac{1}{4}$ in. hole.	per 100,	Price.
Chiefly.	No.	1.	1½ in. long,	$\frac{7}{16}$	in. outside diam.,	$\frac{1}{4}$ in. hole.	per 100,	\$7.00
Chieftain.	"	2.	1½ "	$\frac{7}{16}$	"	$\frac{5}{16}$ "	"	7.00
Chilblain.	"	3.	2½ "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	10.00
Child.	"	4.	2½ "	$\frac{1}{2}$	"	$\frac{5}{16}$ "	"	13.00
Childhood.	"	5.	3 "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	16.00
Childish.	"	6.	4 "	$\frac{7}{16}$	"	$\frac{1}{4}$ "	"	18.00

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

HARD VULCANIZED FIBRE.

RED OR BLACK.

This material can be furnished in sheets of about 40 x 60 inches, and is cut to order. It is entirely free from grit, is very hard and dense, and at the same time exceedingly tough and elastic under compression, and is not in the slightest degree deteriorated by age, but on the contrary improves by seasoning. It can be worked in a lathe, drilled, riveted, sawed and stamped; can be fitted with sharp, strong screw threads, and receives a fine polish. It is not brittle, and cannot be fractured by a fall, or ordinary blow.

It is used for Dynamos, Commutators, Magnet Heads, Switch Boards and Switch Plugs, Wall Insulators, Bases of Telegraph and Electrical Instruments, Press Buttons, Electrical Gas Lighting Appliances, Electric Fire and Burglar Alarms, Electric Lamps, and a variety of purposes. It weighs considerably less than hard rubber.

Trade Word.	Thickness of Sheet.	Weight of Full Sheet.	Price per Pound.		Trade Word.	Thickness of Sheet.	Weight of Full Sheet.	Price per Pound.	
			Full Sheet.	Cut to Order				Full Sheet.	Cut to Order
Chip .....	1 inch	115 lbs.	\$0.80	\$1.25	Choice .....	$\frac{1}{4}$ inch.	30½ lbs.	\$0.62½	\$0.88
Chipped.....	$\frac{7}{8}$ “	97 “	.75	1.20	Choir.....	$\frac{3}{16}$ “	20 “	.62½	.85
Chipping.....	$\frac{3}{4}$ “	86 “	.75	1.18	Choke.....	$\frac{5}{32}$ “	16 “	.62½	.85
Chirp .....	$\frac{4}{5}$ “	70 “	.75	1.15	Choking.....	$\frac{1}{8}$ “	14 “	.62½	.85
Chiseled.....	$\frac{1}{2}$ “	63 “	.62½	.90	Choler.....	$\frac{3}{32}$ “	11½ “	.62½	.85
Chivalrous ....	$\frac{2}{7}$ “	54 “	.62½	.90	Cholera .....	$\frac{1}{16}$ “	7½ “	.75	1.00
Chivalry .....	$\frac{1}{3}$ “	43 “	.62½	.90	Choleric.....	$\frac{1}{32}$ “	5 “	.82	1.10
Chocolate .....	$\frac{5}{16}$ “	35 “	.62½	.88					

In ordering, please add the word “Black” or “Red” after the Trade Word to indicate which is desired.

CHATTERTON’S COMPOUND.

We are direct importers of this article from the English manufacturers. After selling a cheaper imitation compound for a time, we find that the demand is for the genuine imported Chatterton’s Compound, and in future will sell only that grade.

Trade Word.	Price.
Choose. In $\frac{1}{4}$ lb. sticks .....	per lb., \$3.00

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.



BLACK OKONITE TUBING.

Endorsed by all Insurance Underwriters.











We are now prepared to furnish a soft, reliable Tubing, in any size, made from our regular Okonite Compound, which will not harden or deteriorate when exposed to the weather, and has all the good properties of hard rubber, with the additional advantage of its flexibility.

This Tubing meets requirements in which the ordinary soft rubber Tubing is useless, as it withstands varying changes of temperature and does not deteriorate or crack.

Trade Word.	Inside Measurement.	Approximate No. of feet per Pound.	Price per Pound.	Trade Word.	Inside Measurement.	Approximate No. of feet per Pound.	Price per Pound.
Depress . . . . .	$\frac{1}{8}$ inch.	35 feet	\$1.50	Depth. . . . .	$\frac{1}{2}$ inch.	9 feet	\$1.50
Depressing. . . . .	$\frac{3}{16}$ "	25 "	1.50	Depute. . . . .	$\frac{5}{8}$ "	8 "	1.50
Depression. . . . .	$\frac{1}{4}$ "	17 "	1.50	Deputing. . . . .	$\frac{3}{4}$ "	$5\frac{1}{2}$ "	1.50
Deprive . . . . .	$\frac{5}{16}$ "	$12\frac{1}{2}$ "	1.50	Deputy. . . . .	$\frac{7}{8}$ "	$4\frac{1}{2}$ "	1.50
Depriving . . . . .	$\frac{3}{8}$ "	$11\frac{1}{2}$ "	1.50				

SOFT RUBBER TUBING, PURE GUM.

IN LENGTHS OF FIFTY FEET.

Trade Word.				Price.
Chooser. . . . .		$\frac{1}{8}$ inch . . . . .	per foot,	\$0.08
Choosing . . . . .		$\frac{3}{16}$ " . . . . .	"	.12
Chop. . . . .		$\frac{1}{4}$ " . . . . .	"	.16
Chopper . . . . .		$\frac{5}{16}$ " . . . . .	"	.18
Chops . . . . .		$\frac{3}{8}$ " . . . . .	"	.20
Choral. . . . .		$\frac{1}{2}$ " . . . . .	"	.25
Chord . . . . .		$\frac{5}{8}$ " . . . . .	"	.30
Chorister . . . . .		$\frac{3}{4}$ " . . . . .	"	.35
Chorus. . . . .		$\frac{7}{8}$ " . . . . .	"	.40
Chorusgirl. . . . .		1 " . . . . .	"	.45

We have constantly in stock a large quantity of soft rubber tubing.

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.



OKONITE TAPE.

After several years' use, Okonite Tape stands without a competitor. It has proved all we claimed for it, being thoroughly waterproof and a perfect insulating medium. It is not injured by exposure to weather, does not deteriorate when submitted to extreme changes in temperature, and is not affected by commercial acids or alkalies. We make it in any width desired, but keep the  $\frac{1}{2}$  and  $\frac{3}{4}$  inch widths constantly in stock.

Trade Word.	Width.	Price.
Assassin.	$\frac{1}{2}$ inch,	} per pound .....\$1.50
Assassinate.	$\frac{3}{4}$ "	

THE MANSON TAPE.

FOR PROTECTING INSULATED WIRE JOINTS, AND FOR THE BETTER PROTECTION OF INSULATED WIRES FROM ABRASION.

We would respectfully call the attention of consumers and the trade generally to the tape we have upon the market under the above name. This tape is made of heavy cloth, the fabric being cut straight, not diagonally, first saturated with a preparation of itself a first-class insulator, and which adds greatly to its lasting qualities. A compound is then applied, of a nature that allows one layer to adhere closely to another in such a manner that it will not unwrap, even when exposed to the weather. It is made both black and white, and in ordering, be sure and state which is desired.

WE CLAIM:

- That it is the best cloth tape in the market.
- That it will not oxidize the wire.
- That it has no superior, and the price is as low as many inferior tapes now being sold in the market.

We make special widths to order, but carry the  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$  and 2 inch widths always in stock. The  $\frac{3}{4}$  inch comes in  $\frac{1}{2}$  lb. rolls, all others in about 1 lb.

WHITE.				BLACK.			
Trade Word.	Width.		Price.	Trade Word.	Width.		Price.
Derange.	$\frac{3}{4}$ inch	.....per lb.,	\$0.75	Derision.	$\frac{3}{4}$ inch	.....per lb.,	\$0.75
Deranged.	1 "	....."	.75	Derivation.	1 "	....."	.75
Derangement.	$1\frac{1}{4}$ "	....."	.75	Derive.	$1\frac{1}{4}$ "	....."	.75
Deride.	$1\frac{1}{2}$ "	....."	.75	Derogation.	$1\frac{1}{2}$ "	....."	.75
Deriding.	2 "	....."	.75	Derogatory.	2 "	....."	.75

KERITE TAPE.

Put up in packages of about one pound each, and not sold by weight.

Trade Word.	Price.
Chose.....	per package, \$0.95

PARACON TAPE.

A black tape, very strong;  $\frac{3}{4}$  in. wide; put up in tin foil in  $\frac{1}{2}$  lb. packages.

Trade Word.	Price.
Chosen.....	per lb., \$0.60

CHICAGO TAPE.

A black, very sticky and strong article, warranted not to strip off when properly applied to a joint.  $3\frac{1}{2}$  inches wide, in  $\frac{1}{2}$  lb. packages.

Trade Word.	Price.
Chouse.....	per lb., \$0.50

CLIMAX TAPE.

A white tape, similar in appearance to White Manson, composed of strong cotton, permeated with a rubber insulating compound;  $\frac{3}{4}$  in. wide.

Trade Word.	Price.
Chrism.....	per lb., \$0.75

GRIMSHAW TAPE.

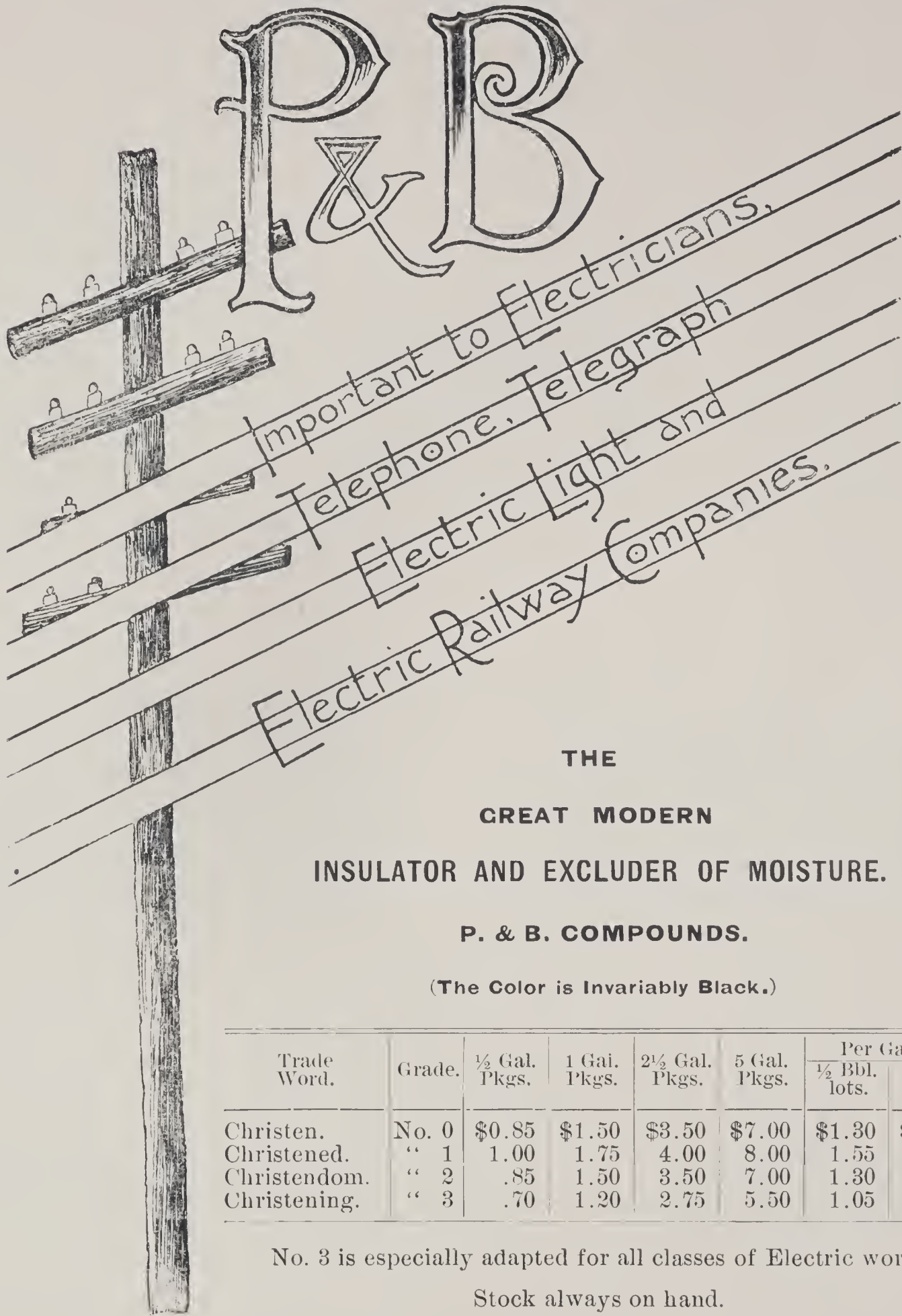
Trade Word.	Price.
Chrismal. White, $\frac{3}{4}$ in. wide	.....per lb., \$1.00
Chrismath. Black, $\frac{3}{4}$ "	....." 1.10

For Explanation of Trade Word see page 4.



CONSTRUCTION MATERIAL.

COMPOUNDS AND SHEATHINGS.



THE  
GREAT MODERN  
INSULATOR AND EXCLUDER OF MOISTURE.

P. & B. COMPOUNDS.

(The Color is Invariably Black.)

Trade Word.	Grade.	½ Gal. Pkgs.	1 Gal. Pkgs.	2½ Gal. Pkgs.	5 Gal. Pkgs.	Per Gal. in	
						½ Bbl. lots.	Bbl. lots.
Christen.	No. 0	\$0.85	\$1.50	\$3.50	\$7.00	\$1.30	\$1.25
Christened.	“ 1	1.00	1.75	4.00	8.00	1.55	1.50
Christendom.	“ 2	.85	1.50	3.50	7.00	1.30	1.25
Christening.	“ 3	.70	1.20	2.75	5.50	1.05	1.00

No. 3 is especially adapted for all classes of Electric work.

Stock always on hand.

GIANT P. & B. INSULATING PAPER.

This paper is thoroughly impregnated with P. & B. Compound, so that every fibre is protected. Is meeting with much favor for armature use.

Trade Word.		Price.
Christian.	1 ply, 1,000 square feet ...per roll,	\$3.50
Christianity.	2 “ 1,000 “ “ .... “	5.50
Christianized.	3 “ 1,000 “ “ .... “	7.50

Trade Word.	CANVAS BODY P. & B. FLEXIBLE BOARD.	Price
Christianlike	.....per keg,	\$8.00

The Canvas Body P. & B. Flexible Board is nearly one-tenth of an inch thick pliable, strong and durable, acid and alkali proof, makes the best and cheapest possible kind of roofing for temporary structures, laboratories, cable houses, battery sheds; and for shelving or tables where high insulation and impermeability to acids is required, this article makes a valuable covering. Its great use will be made manifest by inspecting a sample of it. It is extensively used for general roofing, as it is a perfect roof in itself, only requiring a sufficiently stable structure to support it to afford complete protection against moisture. It is put up and sold only in packages of 212 lineal feet, 33 inches wide (583 square feet).

For Explanation of Trade Word see page 4.

P. & B. ARMATURE VARNISH.

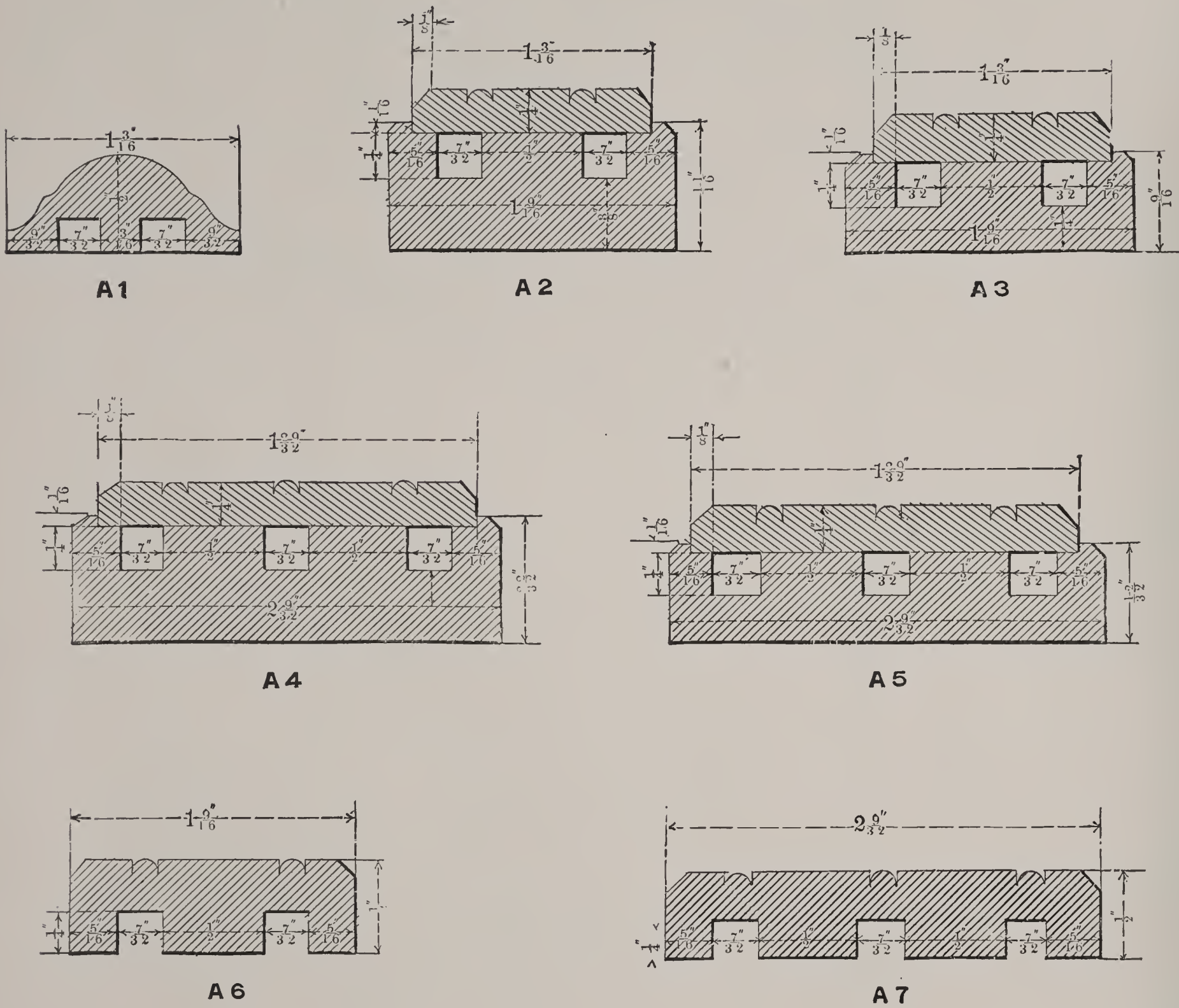
Trade Word.		Price.
Christmas.	1 Gal. can.....	\$ 3.50
Chroma.	5 “ “ .....	15.00



CONSTRUCTION MATERIAL.

MOULDING—Basswood or Poplar.

CUTS FULL SIZE.



Trade Word.	Style.	Price, base only, per 1000 lineal ft.	Price, base and cap, per 1000 lineal ft.
Chromatic.	A 1.....		\$16.50
Chronic.	A 2.....	\$20.00	.....
Chronicle.	A 2.....		31.50
Chronicler.	A 3.....	15.75	.....
Chronological.	A 3.....		27.00
Chronology.	A 4.....	28.50	.....
Chronometer.	A 4.....		45.00
Chrysolis.	A 5.....	24.00	.....
Chrysolite.	A 5.....		40.00
Chub.	A 6.....		22.50
Chubbuck.	A 7.....		33.00

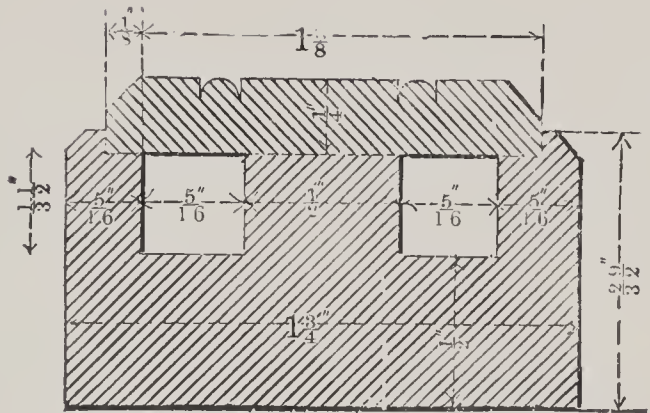
For Explanation of Trade Word see page 4.



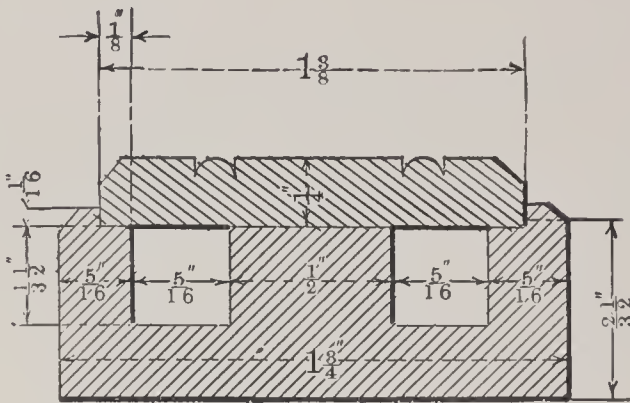
CONSTRUCTION MATERIAL.

MOULDING—Basswood or Poplar.

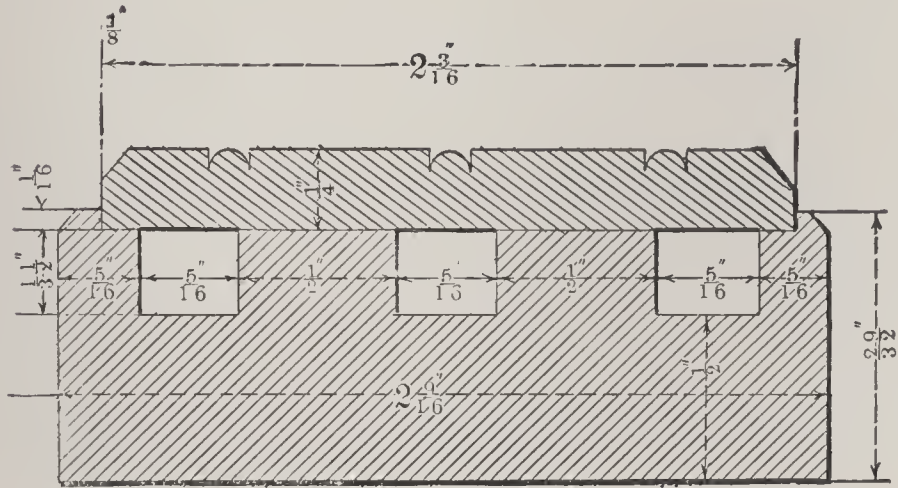
CUTS FULL SIZE.



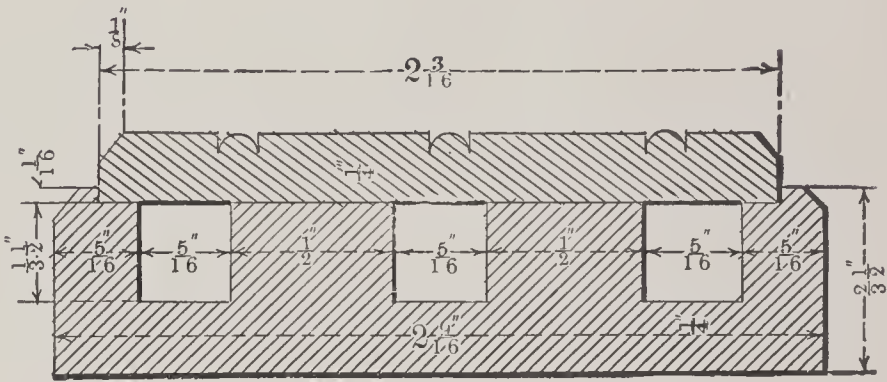
B 1



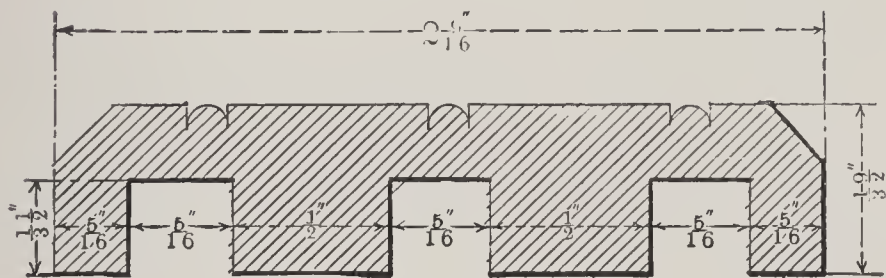
B 2



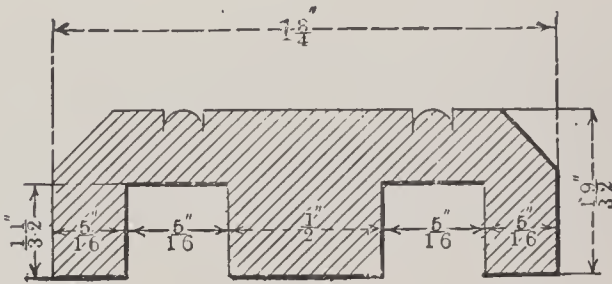
B 3



B 4



B 6



B 5

Trade Word.	Style.	Price, base only, per 1000 lineal ft.	Price, base and cap, per 1000 lineal ft.
Chubby.	B 1.....	\$24.00	.....
Chuck.	B 1.....	.....	\$37.50
Chuckluck.	B 2.....	18.00	.....
Chucker.	B 2.....	.....	21.50
Chuckle.	B 3.....	32.25	.....
Chum.	B 3.....	.....	52.50
Chump.	B 4.....	25.00	.....
Church.	B 4.....	.....	45.00
Churchdom.	B 5.....	.....	26.00
Churchman.	B 6.....	.....	37.50

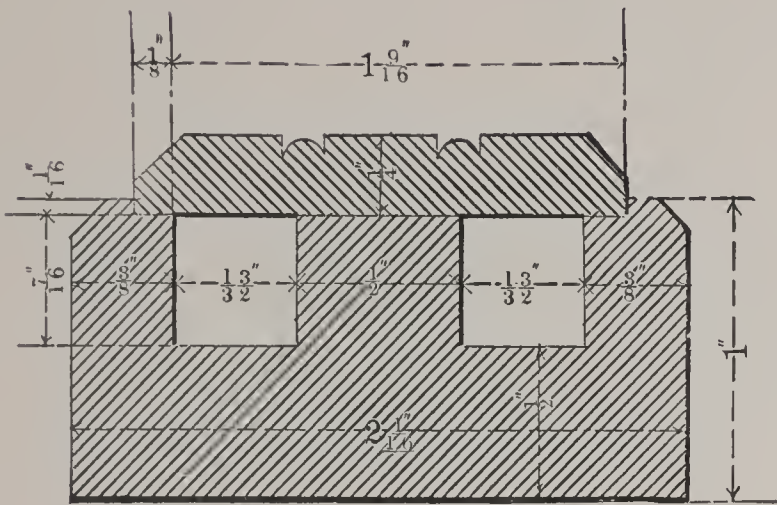
For Explanation of Trade Word see page 4.



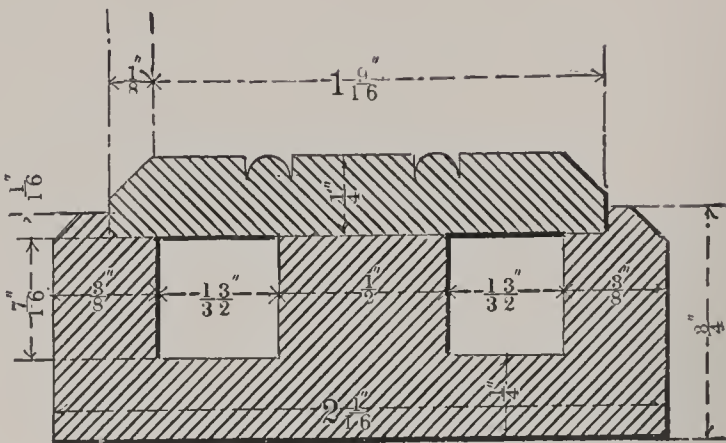
CONSTRUCTION MATERIAL.

MOULDING—Basswood or Poplar.

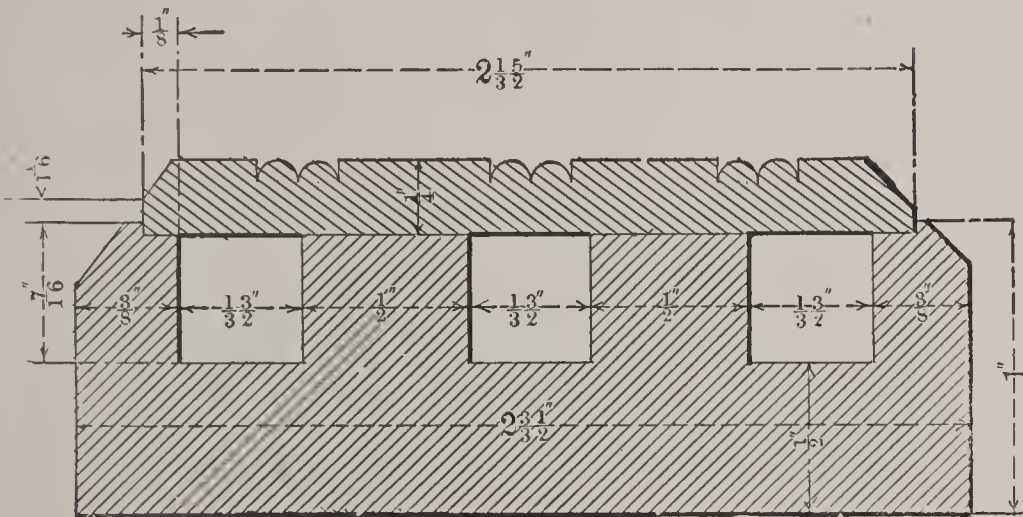
CUTS FULL SIZE.



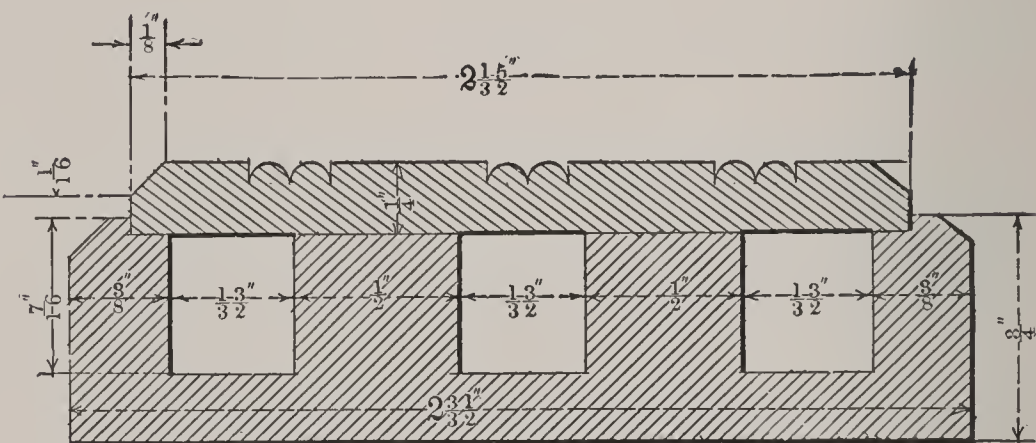
C 1



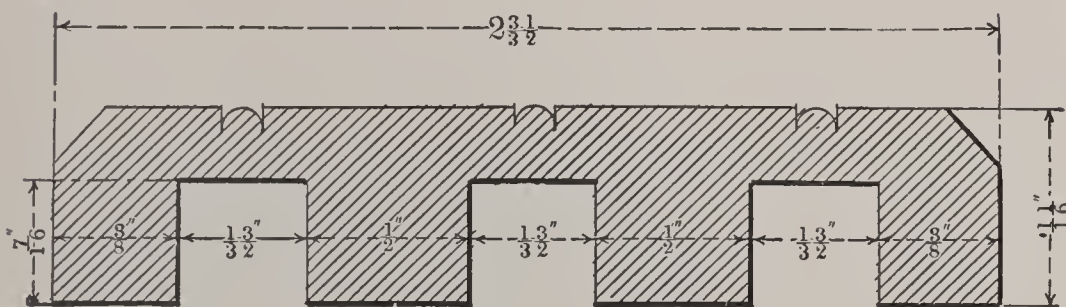
C 2



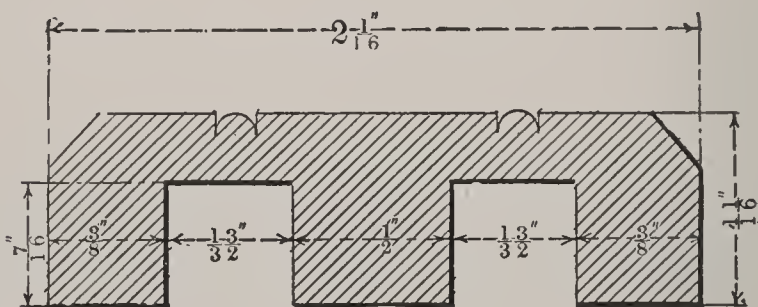
C 3



C 4



C 6



C 5

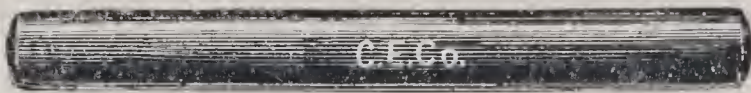
Trade Word.	Style.	Price, base only, per 1000 lineal feet.	Price, base and cap, per 1000 lineal feet.
Churchyard.	C 1	\$28.50	.....
Churl.	C 1	.....	\$42.00
Churlish.	C 2	24.00	.....
Churn.	C 2	.....	37.50
Cicatrice.	C 3	40.00	.....
Cicerone.	C 3	.....	63.00
Cider.	C 4	34.50	.....
Cigar.	C 4	.....	57.00
Cinchona.	C 5	.....	33.75
Cinder.	C 6	.....	45.00

Same style Moulding furnished with 9/16 inch slot and larger to order.

For Explanation of Trade Word see page 4.



COMMUTATOR COMPOUND.



DIRECTIONS FOR USE.

Rub the Compound gently upon the Commutator—a little will do. An immediate improvement will be noticed; but a day or two will show the full benefit, when a high finish will be imparted to the Commutator and a great saving in the wear of the brushes will be noticed.

Apply as often as there is any trouble from sparking or cutting.

Trade Word.	Price.
Concoct.....	per stick, \$1.25

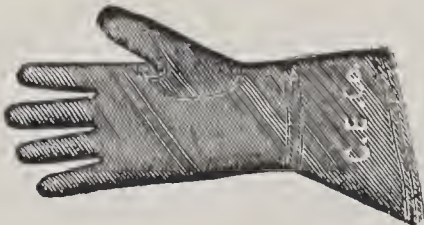
MICA.

Trade Word.	Size of Sheet.	Price.	Trade Word.	Size of Sheet.	Price.
Cindery.	3x3 inches.....per lb.,	\$1.80	Circular.	2x2 inches.....per lb.,	\$0.50
Cindrous.	3x4 “.....“	4.00	Circulate.	2x2½ “.....“	.50
Cinefaction.	3x5 “.....“	7.00	Circulated.	2x3 “.....“	.65
Cinnabar.	3x6 “.....“	8.00	Circulation.	2x3½ “.....“	.80
Cinnamon.	3x7 “.....“	8.50	Circumference.	2x4 “.....“	1.10
Cipher.	3x8 “.....“	8.75	Circumflex.	2x4½ “.....“	1.40
Circassian.	4x4 “.....“	6.25	Circumjacent.	2x5 “.....“	1.75
Circle.	4x5 “.....“	7.75	Circumnavigate.	2x5½ “.....“	2.40
Circling.	4x6 “.....“	9.00	Circumscribe.	2x6 “.....“	3.00
Circuit.	4x7 “.....“	9.50	Circumspect.	2x7 “.....“	4.00
Circuitous.	4x8 “.....“	9.75	Circumstance.	2x8 “.....“	4.50

COTTON WASTE.

Trade Word.	Price.
Circumstantial. White.....	per lb., \$0.15
Circumvent. Colored.....	“ .12½

RUBBER GLOVES.



For linemen’s use, when working about wires carrying dangerous currents.

Trade Word.	Price.
Circus. With Gauntlet.....	per pair, \$2.00
Cistern. Without Gauntlet.....	“ 1.50

State size when ordering. Order rubber gloves three sizes larger than kid gloves, that is to say if a No. 7 kid glove is worn, a No. 10 rubber glove is needed.

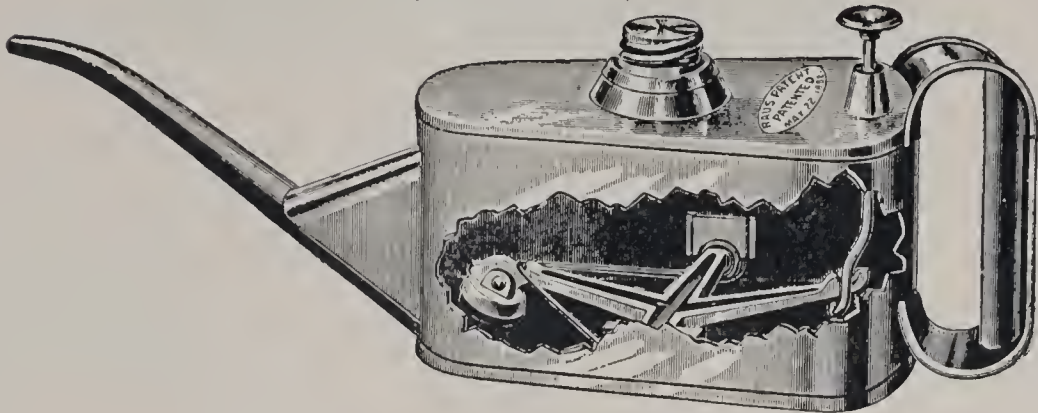
For Explanation of Trade Word see page 4.



OIL CANS.

THE PERFECTION OIL CAN.

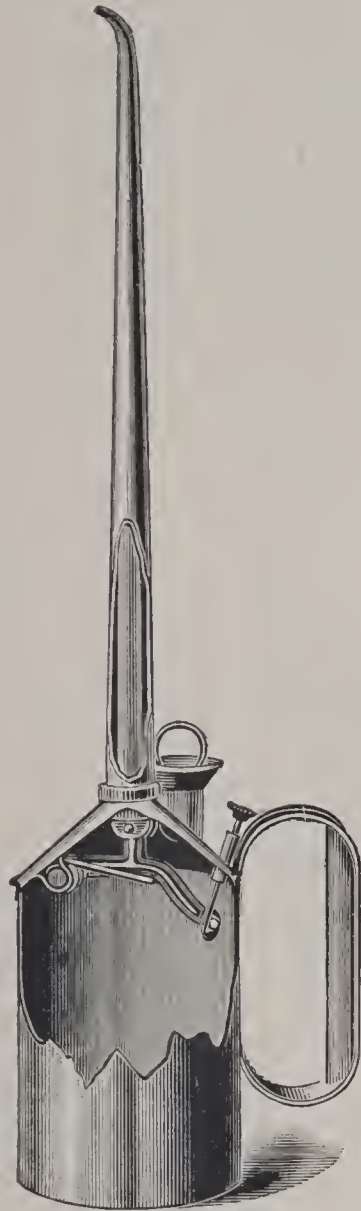
(Rau Patent.)



FILLER CAN.

The Perfection Oil Can starts and stops the flow of oil instantly by an air-tight cut-off at the inner opening of the spout, and is operated at will, by pressing connecting push-stem, just in front of can handle (see cut).

In use, the spout remains full of oil. The flow starts by the pressure of oil and air the instant the valve is raised from its seat inside the can. The flow is stopped as instantly by the valve's returning to its place. The air pressure at the end of the spout prevents one drop from escaping.



UPRIGHT CAN.

Trade Word.	Size.	FILLER CANS.	Price.	
			Tin.	Brass.
Citable.	$\frac{1}{2}$ pint.		\$1.00	
Citadel.	$\frac{1}{2}$ "			\$1.25
Citation.	1 "		1.10	
Cite.	1 "			1 35
Cited.	1 quart.		1.25	
Citizen.	1 "			1.60
Citizenship.	2 "		1.50	
Citrate.	2 "			2.00

Trade Word.	Size.	UPRIGHT CANS.	Price.	
			Tin.	Brass.
Citron.	$\frac{1}{2}$ pint.		\$1.00	
City.	$\frac{1}{2}$ "			\$1.25
Civet.	1 "		1.10	
Civic.	1 "			1.35
Civil.	$1\frac{1}{2}$ "		1.25	
Civilian.	$1\frac{1}{2}$ "			1.60
Civility.	1 quart.		1.50	

OILING SETS.



COPPER.

Trade Word.		Price.
Civilization.	Small, set 4 pieces,	\$7.00
Civilize.	Large, " 5 "	8.00

For Explanation of Trade Word see page 4.



THE ELLIS OIL FILTER.



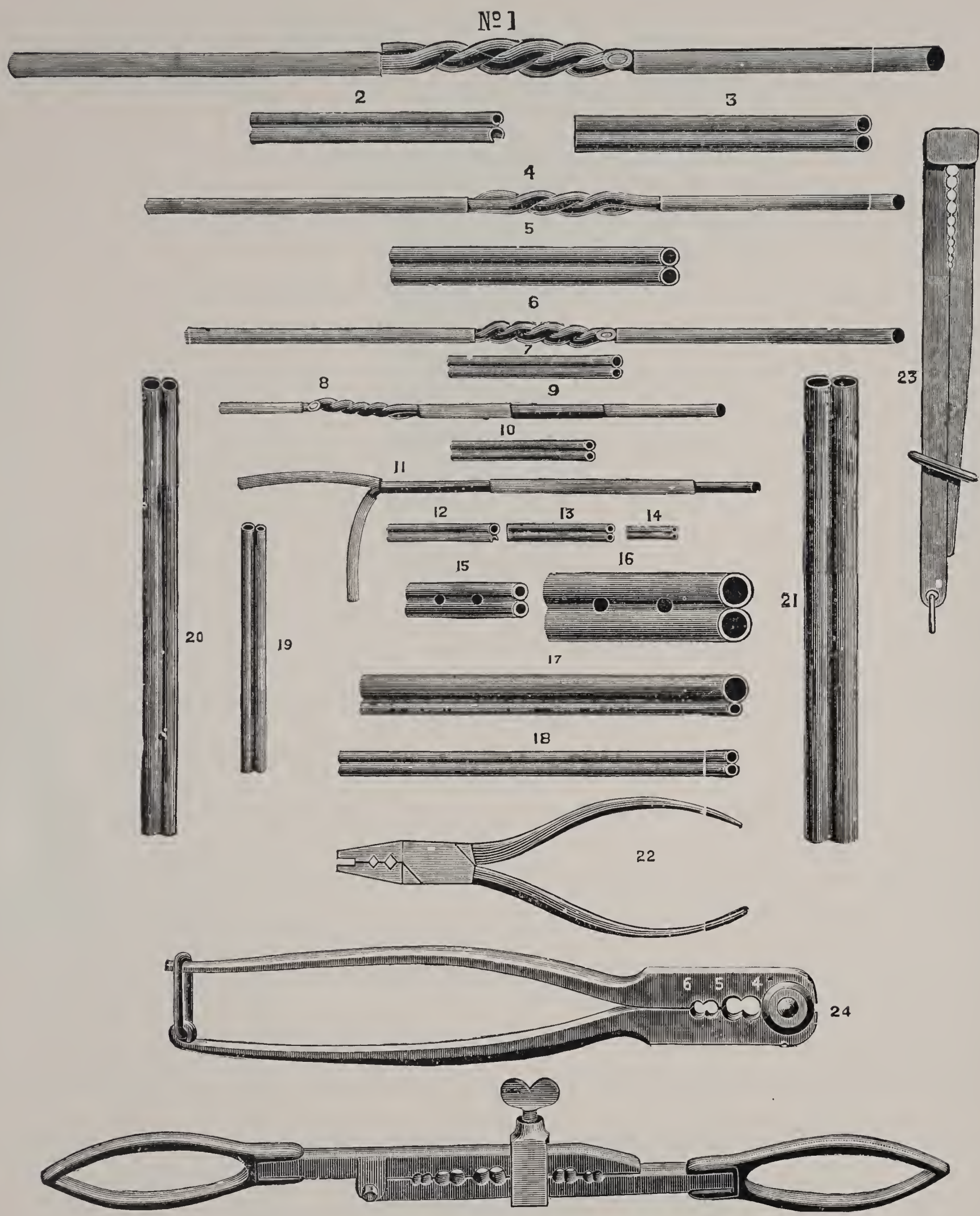
Owing to close competition in electric lighting and electro-mechanical enterprises, it is very necessary to economize in every possible direction, and by the use of an effective oil filter, the oil can be used a number of times, making a very considerable saving. The oil, after passing through the filter, is actually heavier and better than before. This important saving is made with very little trouble to the dynamo tender, as he has but to place pans under the oil cups of his machinery, or at points where oil is thrown out, to catch the dripping oil and pour the same into the filter. The oil percolates through the filter and drips pure and clean into the tank underneath, from which it is drawn off when needed for use. The appliance is very simple and requires scarcely any attention, while it will certainly pay for itself in the saving made out of the first few barrels of oil used. The Ellis Filter is the invention of a practical electric light man, and is designed to exactly suit the needs of electrical machinery.

Trade Word.										Price.
Civilized.	Tank and Filter combined, capacity of Filter 13 gallons per day.....each,									\$40.00
Clack.	“	“	“	“	“	10	“	“	.....	“ 30.00
Clad.	“	“	“	“	“	6	“	“	.....	“ 25.00

For Explanation of Trade Word see page 4.



McINTYRE'S CONNECTORS.



No. 25. McINTYRE TWISTER.

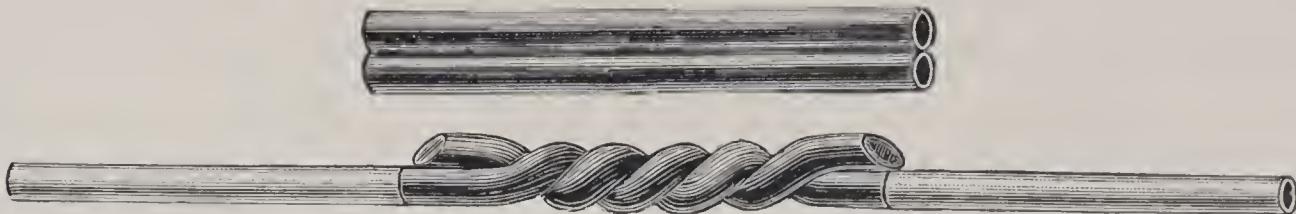
DESCRIPTION AND DESIGNATION BY NUMBERS.

No. 1.	Line Connectors for No. 6.	No. 15-16.	Soldered Connector for Large Wires, 0000 to 00.
No. 2.	Clip or Branch Connector.	No. 17.	Combination Connector for Nos. 1 and 6.
No. 3.	Twist Connector, No. 6 Wire.	No. 18.	Long Twist Connector, No. 10 H. D. Copper Wire
No. 4.	" " No. 10 "	No. 19.	Combination, Nos. 8 and 12 Electric Light Wire.
No. 5.	" " No. 4 "	No. 20.	Long Twist Connector, No. 6 H. D. Copper.
No. 6-7.	" " No. 12 "	No. 21.	Twist Connector, No. 0 Electric Light Wire.
No. 8-9.	Twist and Compressed Connectors.	No. 22.	Compressing and Cutting Pliers, Nos. 12 to 20.
No. 10.	Small Twist Connector.	No. 23.	Twisting Clamps, Nos. 8 to 16.
No. 11.	Branch Connector.	No. 24.	" " Nos. 4, 5 and 6.
No. 12.	Small Clip or Branch.	No. 25.	" " Nos. 0 to 6.
No. 13-14.	Compressed Connector.		

For Prices, see next page.



McINTYRE'S CONNECTORS.



(See previous page.)

PRICES PER HUNDRED.

Gauge. B. & S.	Twist Connect- ors for Elec- tric LightWire.	Compressed Connectors.	Hard Drawn Copper Wire.	Galvanized Iron Wire.	Solder and Rivet Connectors.
0000	.....	.....	.....	.....	\$50.00
000	.....	.....	.....	.....	50.00
00	.....	.....	.....	.....	50.00
0	.....	.....	.....	.....	40.00
1	.....	.....	.....	.....	40.00
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
1	\$30.00	.....	.....	.....	.....
2	24.00	.....	.....	.....	.....
3	20.00	.....	.....	.....	.....
4	18.00	.....	.....	\$16.00	.....
5	16.00	.....	.....	16.00	.....
6	16.00	.....	\$23.00	16.00	.....
7	12.00	.....	21.00	.....	.....
8	11.00	.....	19.00	12.00	.....
9	.....	.....	17.00	12.00	.....
10	9.00	.....	14.00	10.00	.....
11	8.00	.....	.....	10.00	.....
12	8.00	\$8.00	14.00	8.00	.....
13	7.00	7.00	.....	.....	.....
14	7.00	7.00	14.00	8.00	.....
15	7.00	7.00	.....	.....	.....
16	5.00	5.00	12.00	.....	.....
17	5.00	5.00	.....	.....	.....
18	5.00	5.00	.....	.....	.....
19	3.00	3.00	.....	.....	.....
20	3.00	3.00	.....	.....	.....

In ordering these goods please describe by number.

McINTYRE'S TOOLS.

(See cuts on previous page.)

TWISTING CLAMPS.

PER SET OF TWO PAIRS (Figs. 23, 24, 25).

Trade Word.	Wire Nos.	Price.
Coercion.	No. 23, 8 to 16.....	\$10.00
Coercive.	No. 24, 4, 5, 6.....	9.00
Coeval.	No. 25, 0 to 6.....	12.00

COMPRESSING AND CUTTING PLYERS (Fig. 22).

Trade Word.	Price.
Coexist. For Wire Nos. 10 to 20.....	each, \$2.00

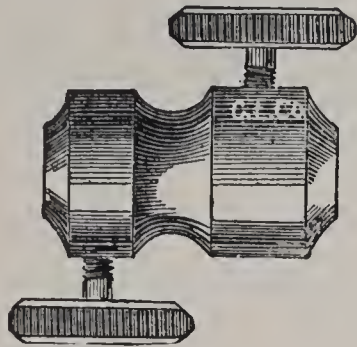
For incandescent wiring use the McIntyre "Compression" Connector (Figs. 11, 13 and 14). By use of "Branch" Connector (Fig. 2) a branch wire may be readily attached to the main wire.  
For large wires, Nos. 0 to 000000, a Connector is used with solder, no twisting being done; the solder is dropped through the holes in side of the Connector (Figs. 15 and 16), a dent having been made in the wire by a punch, and the solder is riveted in place, perfect contact being due to perfect fit.  
For wires Nos. 0 to 4, 4 to 8, and 8 to 16, a set (two pairs) of clamps are used to twist the Connectors (Figs. 23, 24 and 25). These are clamped over the Connectors close to the end, and one and a half to two and a half turns or twists are sufficient to make joints.  
For lighter work on wire Nos. 12 to 20, the Compressing Plyers (Fig. 22) are used. These also have cutting edges at the tip end, and are useful in close quarters where ordinary cutters could not be used.  
For hard-drawn copper, iron or steel wires, longer Connectors which do not require as many turns in connecting are used.

For Explanation of Trade Word see page 4.



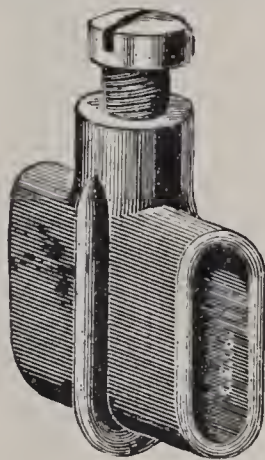
CONNECTORS.

DOUBLE CONNECTOR.



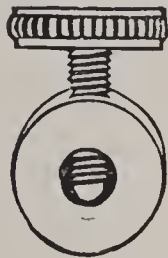
Trade Word.		Price.
Coffee.	Plain.....each,	\$0.10
Coffin.	Finished.....“	.15

OVAL CONNECTOR.



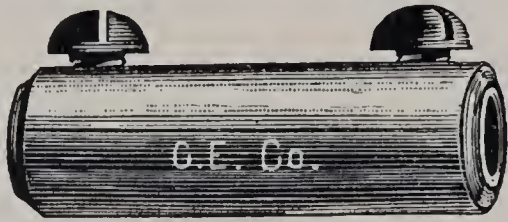
Trade Word.		Price.
Cognac.	No. 0, Wire.....each,	\$0.12
Cognate.	“ 2, “.....“	.10
Cognizant.	“ 4, “.....“	.08
Coheir.	“ 6, “.....“	.08

SINGLE CONNECTOR.



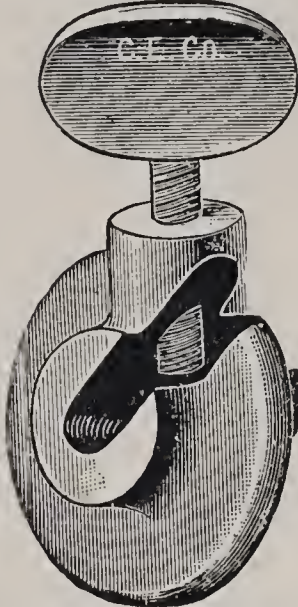
Trade Word.		Price.
Cohere.	Plain.....each,	\$0.08
Coherently.	Finished.....“	.10

CYLINDRICAL CONNECTOR.



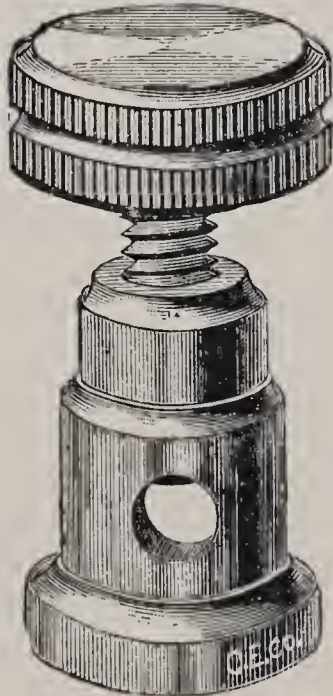
Trade Word.		Price.
Cogency.	No. 4, Wire.....each,	\$0.10
Cogent.	“ 5, “.....“	.10
Cogitate.	“ 6, “.....“	.10

GROUP CONNECTOR.



Trade Word.	For Grouping Wires.	Price.
Coheirress.....	each,	\$0.20

DYNAMO TERMINALS.



Trade Word.		Price.
Cohesion.....	each,	0.40

McINTIRE DYNAMO TERMINALS.



Trade Word.		Price.
Cohesively.	No. 0, B. and S. Gauge.....per hundred,	\$11.00
Coil.	“ 1, “.....“	9.00
Coiled.	“ 2, “.....“	8.00
Coinage.	“ 3, “.....“	7.50
Coincide.	“ 4, “.....“	7.00
Coincident.	“ 6, “.....“	6.00
Coiner.	“ 8, “.....“	5.00
Coke.	“ 10, “.....“	4 50
Cold.	“ 12, “.....“	4 00

For Explanation of Trade Word see page 4.



**BINDING POSTS.****AMERICAN STYLE.**

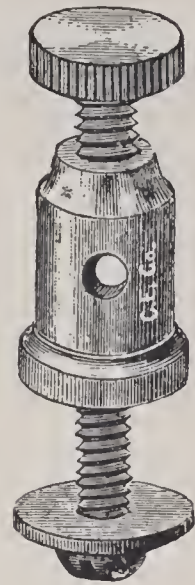
Trade Word.  
Coldness.....each, \$0.30

Price.



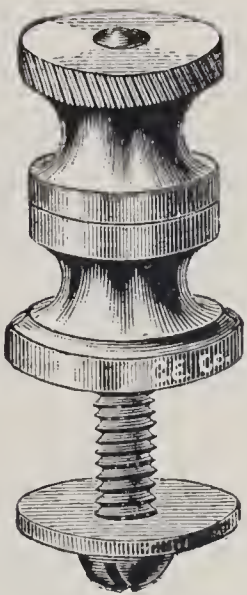
Trade Word.  
Coldly.....each, \$0.15

Price.



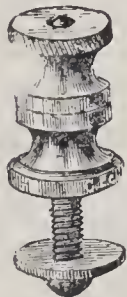
Trade Word.  
Colic.....each, \$0.20

Price.

**ENGLISH STYLE.**

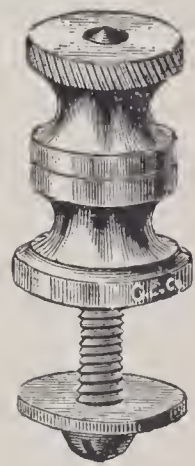
Trade Word.  
Collapse.....each, \$0.22

Price.



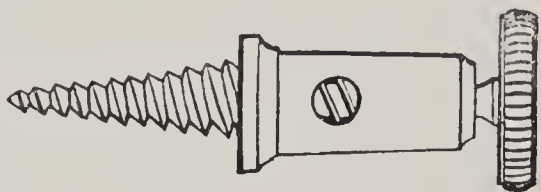
Trade Word.  
Collar.....each, \$0.18

Price.



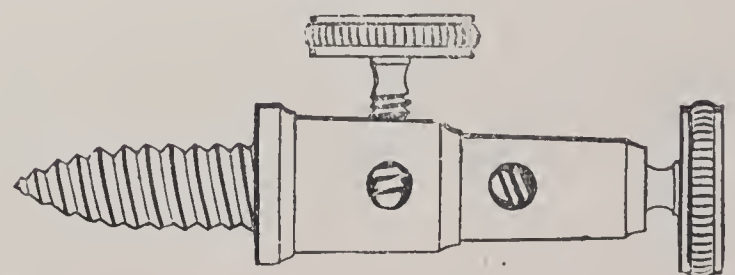
Trade Word.  
Collate.....each, \$0.20

Price.

**AMERICAN STYLE WITH WOOD SCREWS.****SINGLE.**

Trade Word.  
Collateral.....each, \$0.12

Price.

**DOUBLE.**

Trade Word.  
Collation.....each, \$0.20

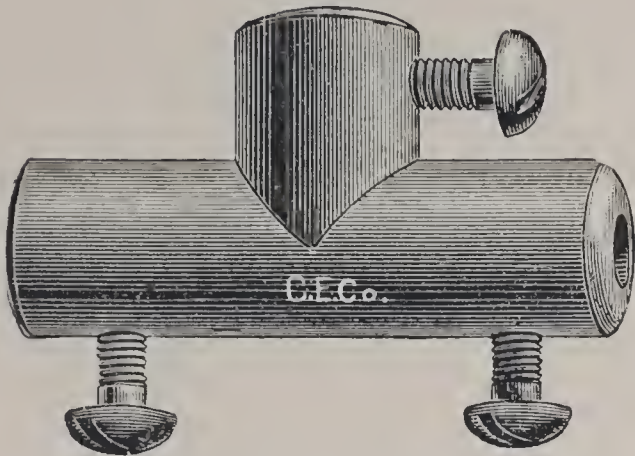
Price.

**For Explanation of Trade Word see page 4.**



CONNECTORS.

T CONNECTOR.

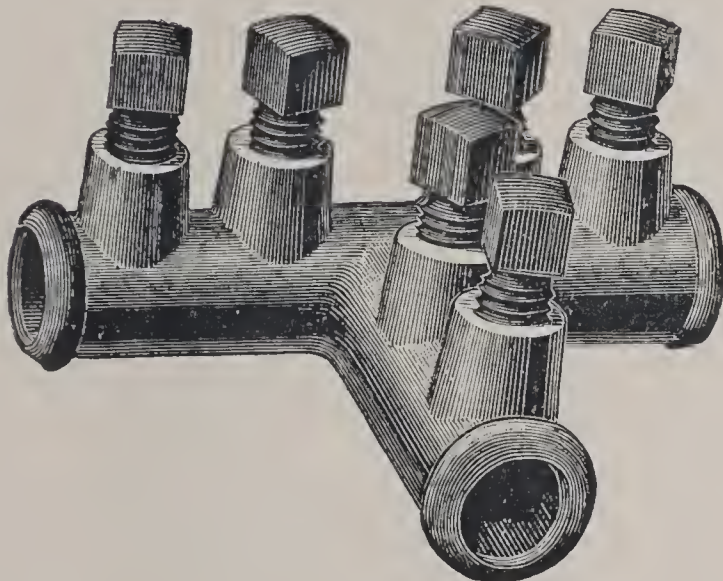


For No. 4 Wire and smaller.

Trade Word.  
Colleague.....each, \$0.20

Price.

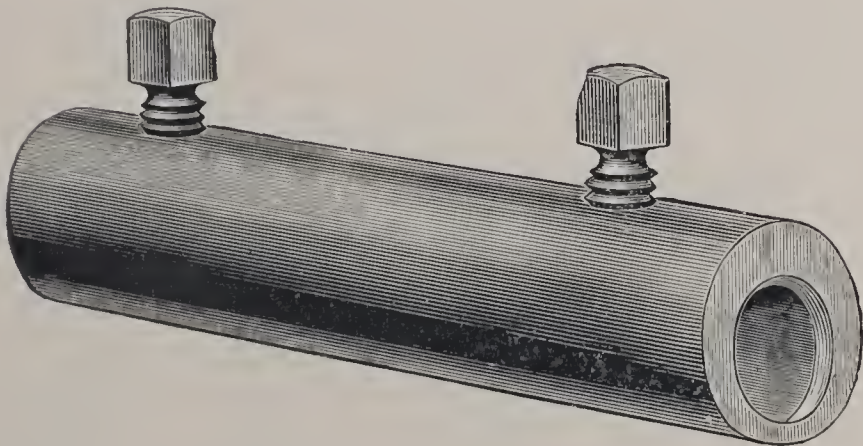
T CONNECTOR.



Trade Word.  
Collector. For 0 Wire.....\$0.60  
College. " 0000 Wire..... 1.15

Price.

5-16 INCH CONNECTOR.



Trade Word.  
Collegian.....each, \$0.40

Price.

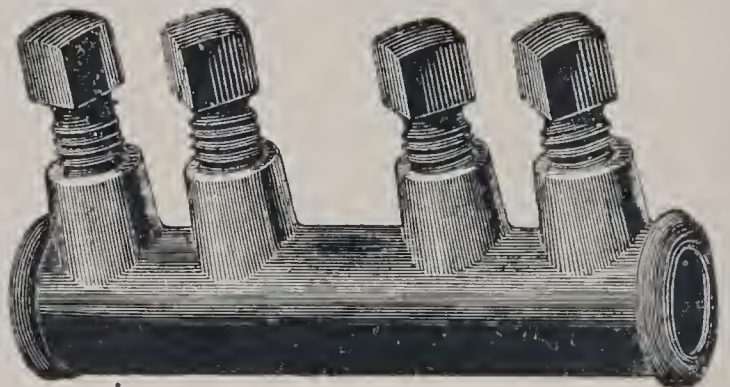
T CONNECTOR.



Trade Word.  
Collect.....each, \$0.20

Price.

STRAIGHT CONNECTOR.

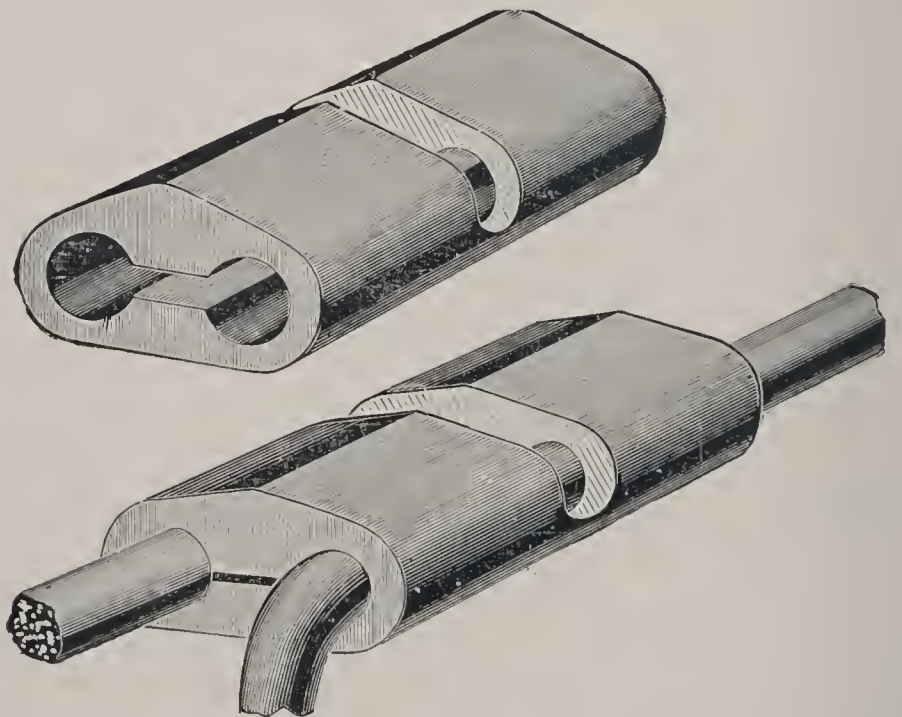


Trade Word.  
Collecting. For 0 Wire.....\$0.40  
Collection. " 0000 Wire..... .75

Price.

BRENNAN'S NO-SOLDER CONNECTORS.

Cut shows Connector for Wire from 00000 to 0.



Pass the ends of the wires to be joined, each through its own socket, and a fraction of an inch beyond; hammer moderately on and along the ridge till the sockets begin to grip the wires, then with light blows turn down the projecting ends to form the hooks, then finish with moderate and equable hammering along the ridge.

NOTE.—When this Coupler can be STRUNG on the stem wire in advance of its fastenings, it will afford branch connections, single or double, or support stay-lines, etc.

Trade Word.  
Collegiate.....each, \$0.75

Price.

For explanation of Trade Word see page 4. In ordering, state size needed.



LEATHER BELTING.

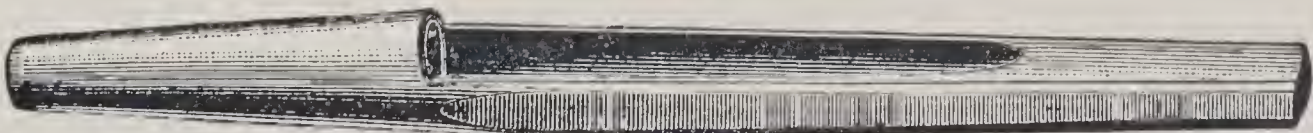


MUNSON'S CELEBRATED LEATHER BELTING, ESPECIALLY ADAPTED FOR DYNAMO WORK.

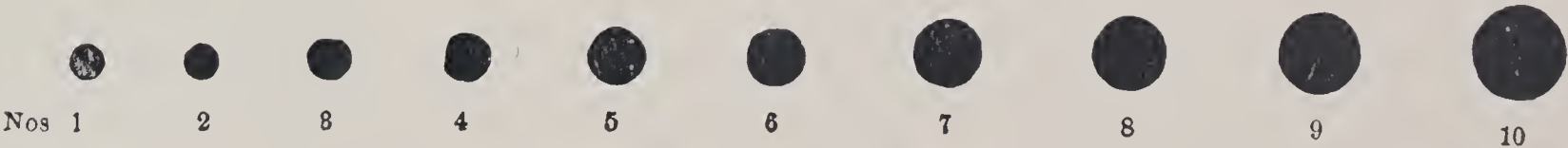
In ordering, give the width of the belt, the work required, diameter of pulleys, distance between centres and speed. By giving the exact length of the belt we can have the same made endless at the factory. We have made special arrangements for producing this belting promptly. The prices are for double leather belts. Single belts on list at half these figures:

Trade Word.	Width.	Price.	Trade Word.	Width.	Price.
Collide.	1 inch.....	\$0.20	Column.	13 inches....	\$ 3.36
Collided.	1¼ ".....	.26	Coma.	14 ".....	3.64
Collier.	1½ ".....	.34	Comatose.	15 ".....	3.96
Colliery.	1¾ ".....	.40	Comb.	16 ".....	4.28
Collision.	2 ".....	.46	Combat.	17 ".....	4.62
Collocate.	2¼ ".....	.52	Combatant.	18 ".....	4.98
Colloquial.	2½ ".....	.60	Combinable.	19 ".....	5.32
Colloquy.	2¾ ".....	.66	Combination.	20 ".....	5.68
Collusion.	3 ".....	.72	Combine.	21 ".....	6.04
Collusive.	3½ ".....	.86	Combustible.	22 ".....	6.40
Colon.	4 ".....	1.00	Comedian.	23 ".....	6.74
Colonel.	4½ ".....	1.12	Comedy.	24 ".....	7.08
Colonist.	5 ".....	1.26	Comet.	26 ".....	7.84
Colonizing.	5½ ".....	1.40	Cometary.	28 ".....	8.60
Colonnade.	6 ".....	1.52	Comfit.	30 ".....	9.28
Colony.	6½ ".....	1.66	Comfort.	32 ".....	10.00
Colossal.	7 ".....	1.80	Comfortable.	34 ".....	10.70
Color.	8 ".....	2.04	Comforted.	36 ".....	11.40
Colorable.	9 ".....	2.30	Comic.	40 ".....	12.80
Colorless.	10 ".....	2.58	Comical.	44 ".....	14.20
Colt.	11 ".....	2.84	Comically.	48 ".....	15.60
Columbine.	12 ".....	3.10	Command.	52 ".....	17.00

BELT PUNCHES.



Full Size Cut of No. 6.



Trade Word.	No.	Price.	Trade Word.	No.	Price.
Commander.	1.....each,	\$0.50	Commented.	6.....each,	\$1.00
Commanding.	" 2.....	.50	Commentary.	" 7.....	1.50
Commence.	" 3.....	.65	Commerce.	" 8.....	1.75
Commencing.	" 4.....	.75	Commercial.	" 9.....	2.25
Comment.	" 5.....	.80	Commingle.	" 10.....	2.50

For Explanation of Trade Word see page 4.



MUNSON’S BELT CEMENT.



By using this Belt Cement an ordinary belt can be made endless while the belt is in position upon the pulleys, thus doing away with the troubles and irregularities in speed arising from lacing. It can be used quickly, and if properly applied will be found to be more serviceable than any other form of belt joint.

DIRECTIONS WITH EACH PACKAGE.

Trade Word.	Price.
Commissary.....	per pound, \$1.00

MUNSON’S BELT DRESSING.

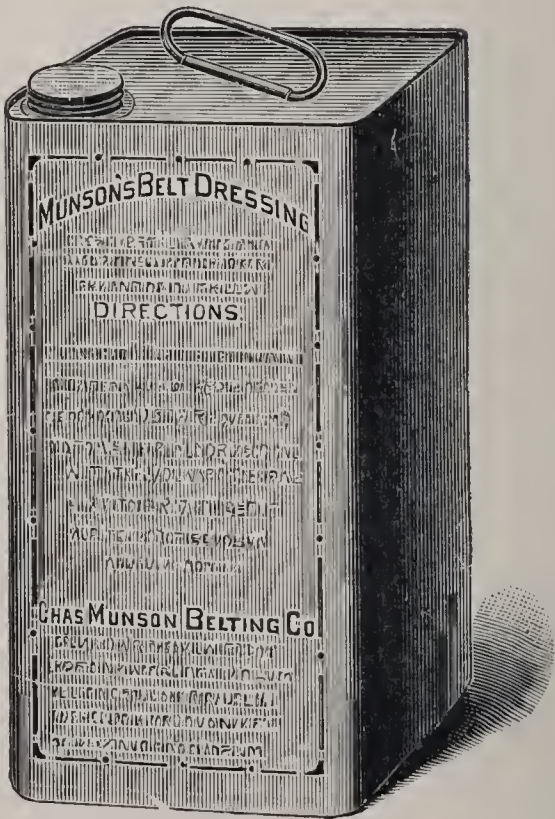
The nostrums in the market are destructive to leather.

This Dressing we recommend to obviate the slipping of belting, is a preservative and a preventive of the effect of moisture, and will add to the life and durability of the belt.

This belting, when new, requires nothing. When the grain gets dry make a slight application with a brush. The best time is when shutting down at night.

IT WILL REPAY A HUNDRED FOLD. TRY IT.

Furnished as desired, in quantities from one gallon upward.



Trade Word.	Price.
Commission.....	per gallon \$1.50

For Explanation of Trade Word see page 4.



## INTERIOR CONDUITS.

Experience having demonstrated that electric light wiring can only be done economically and effectively by the establishment of "Centers of Distribution," wherefrom to radiate all minor branch circuits, the Interior Conduit System has been modelled in its entirety upon this plan, and really good work can only be had by installing the system thereon. The illustrations of a building, showing wiring and crib employed, will convey a clearer idea of the method.

For the mains or feeders a separate tube should be used for each conductor. A rigid wire, with either underwriters or weatherproof insulation, may be employed. For the branches our OKONITE wire should always be used, with two conductors in one tube. Employ as many risers as practicable. This avoids long lateral runs or taps, which are objectionable. Do not distribute for more than six or eight lights on one tap. To make a thoroughly first-class job in every respect, however, nothing but OKONITE wire should be used throughout.

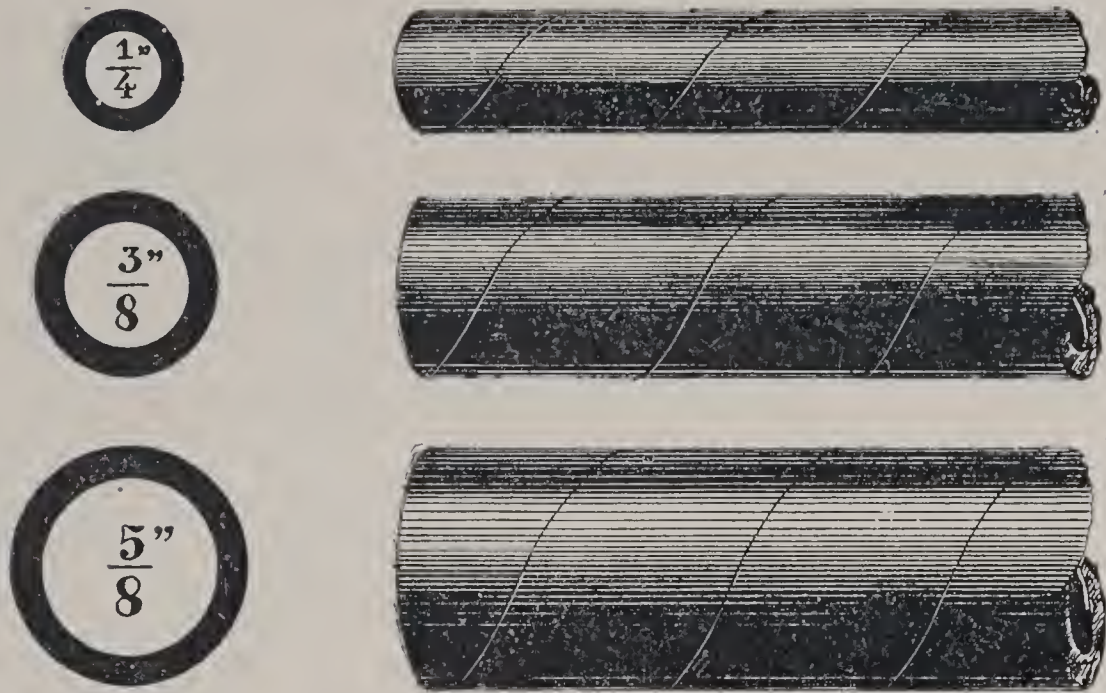


Cut showing method of distribution, affording a complete raceway for electric light conductors.



INTERIOR CONDUITS.

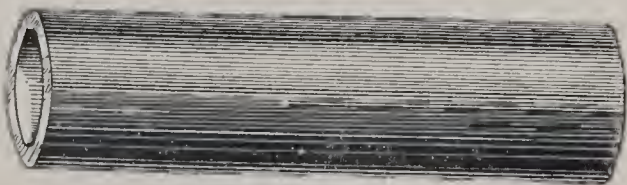
TUBE.



The Tube is composed of several layers of paper, thoroughly impregnated with an insulating compound, and is waterproof. By installing this conduit when the building is in course of construction, and employing our okonite wire for conductors, we can guarantee as nearly perfect work as the present state of the art of wiring buildings will admit.

Trade Word.	Size.						Price.
Complaint.	1/4,	inside diameter	.....	Grade 1	.....	per 100 feet,	\$2.00
Compliment.	3/8,	"	"	.....	"	"	2.50
Complete.	1/2,	"	"	.....	"	"	3.00
Completion.	5/8,	"	"	.....	"	"	3.50
Complex.	3/4,	"	"	.....	"	"	4.00
Complexion.	1,	"	"	.....	"	"	5.00
Complexity.	1 1/4,	"	"	.....	"	"	8.00

COUPLINGS.



COUPLING.

Trade Word.	Size.						Price.
Compliance.	1/4,	.....	Grade 1	.....	plain,	per 100,	\$0.75
Complicate.	3/8,	.....	"	.....	"	"	1.00
Complicity.	1/2,	.....	"	.....	"	"	1.05
Complied.	5/8,	.....	"	.....	"	"	1.10
Complot.	3/4,	.....	"	.....	"	"	1.30
Comport.	1,	...	"	.....	"	"	1.50
Comported.	1 1/4,	.....	"	.....	"	"	1.75

For Explanation of Trade Word see page 4.



INTERIOR CONDUITS.

THREADED COUPLING.



These couplings are made of metal and enameled—thus making a thoroughly insulated and moisture proof joint.

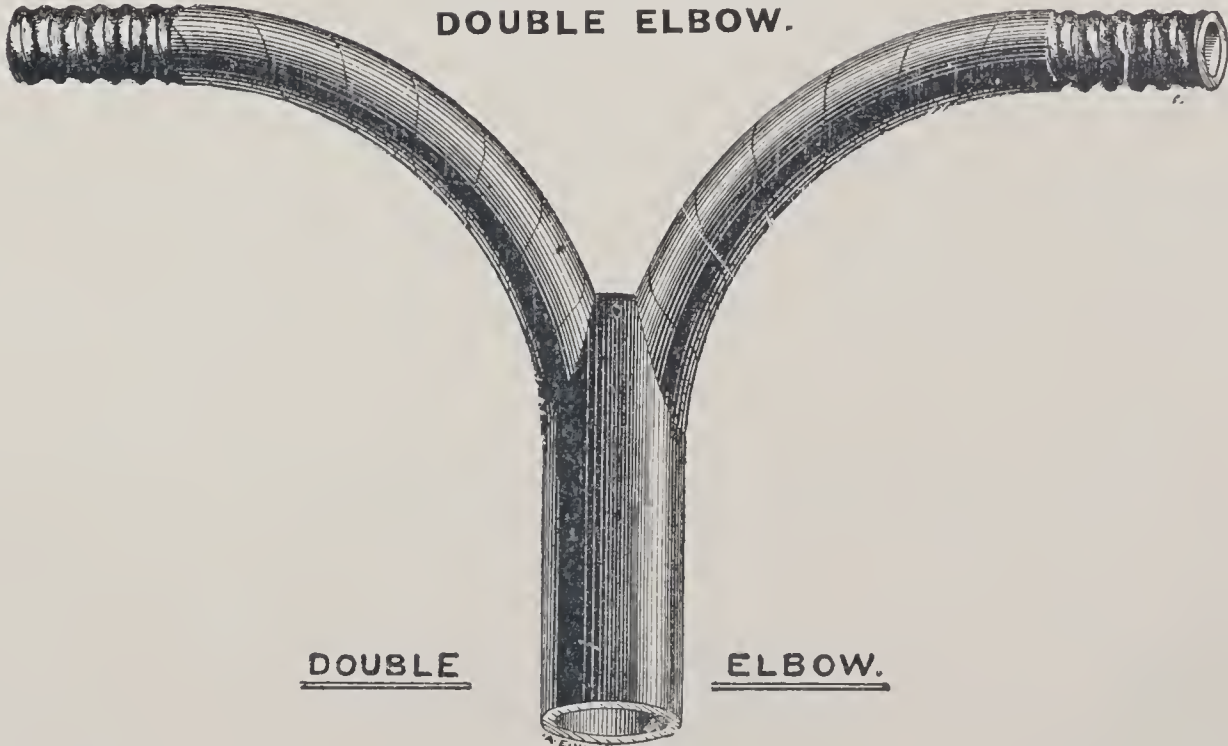
Trade Word.		Price.	
Compose.	$\frac{1}{4}$ .....	per 100,	\$2.00
Composing.	$\frac{3}{8}$ .....	"	3.00
Composite.	$\frac{1}{2}$ .....	"	3.50
Composition.	$\frac{3}{4}$ .....	"	4.00
Comprehend.	$\frac{3}{4}$ .....	"	5.00
Compress.	1.....	"	6.00
Compression.	$1\frac{1}{4}$ .....	"	7.00

ELBOWS.



Trade Word.		Price.	
Comprise.	$\frac{1}{4}$ , Grade 1, Short, per 100, \$ 5.00 Long.....	per 100, \$	7.00
Compulsive.	$\frac{3}{8}$ , " 1, " " 6.00 " .....	"	8.00
Compulsory.	$\frac{1}{2}$ , " 1, " " 6.50 " .....	"	8.50
Compute.	$\frac{3}{4}$ , " 1, " " 7.00 " .....	"	9.00
Comrade.	$\frac{3}{4}$ , " 1, " " 8.00 " .....	"	10.00
Comradeship.	1 " 1, " " 12.00 " .....	"	15.00
Concave.	$1\frac{1}{4}$ , " 1, " " 15.00 " .....	"	25.00

DOUBLE ELBOW.



Trade Word.		Price.	
Concavity.	$\frac{1}{4}$ , Grade 1.....	per 100, \$	10.00
Conceal.	$\frac{3}{8}$ , " 1.....	"	12.00
Concealed.	$\frac{1}{2}$ , " 1.....	"	13.00
Concede.	$\frac{3}{4}$ , " 1.....	"	14.00
Conceder.	$\frac{3}{4}$ , " 1.....	"	16.00
Conceding.	1 " 1.....	"	24.00
Conceit.	$1\frac{1}{4}$ , " 1.....	"	30.00

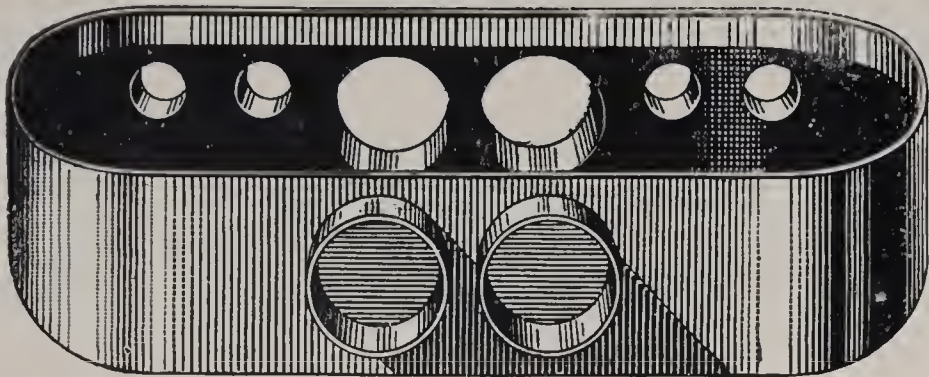
For Explanation of Trade Word see page 4.



INTERIOR CONDUITS.

MAIN JUNCTION BOXES.

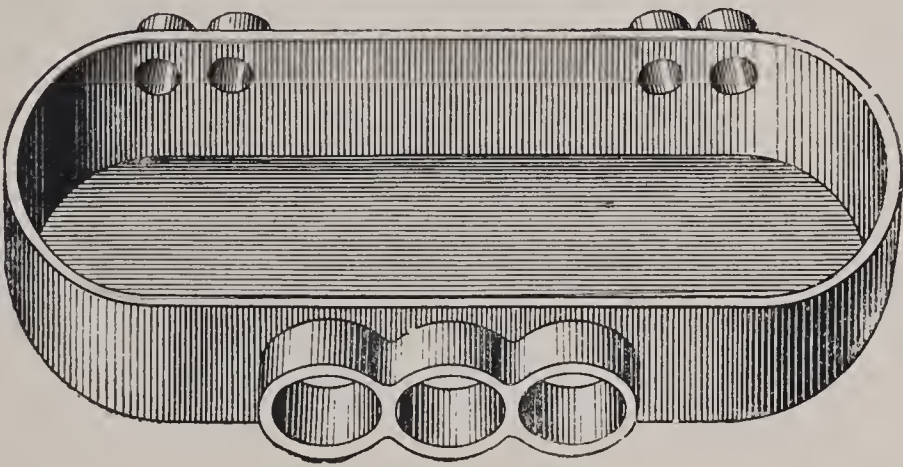
Two Wire Through.



No. 1

FOR BRICK WORK.				FOR LATH AND PLASTER.			
Trade Word.			Price.	Trade Word.			Price.
Conceive.	No. 1,	4 Circuit, Main Line..	\$1.15	Concern.	No. 10,	4 Circuit, Main Line..	\$1.30
Conceiving.	No. 2,	2 " " " ..	1.00	Concernedly.	No. 11,	2 " " " ..	1.15
Concentrate.	No. 3,	4 " " Terminal..	1.15	Concert.	No. 12,	4 " " Terminal..	1.30
Conception.	No. 4,	2 " " " ..	1.00	Concertedly.	No. 13,	2 " " " ..	1.15

THREE WIRE TERMINAL.

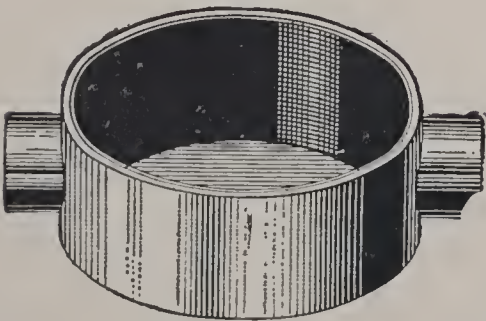


No. 22.

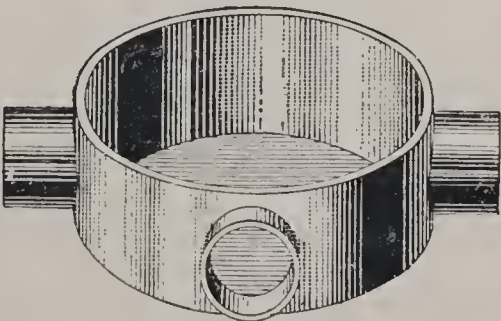
FOR BRICK WORK.				FOR LATH AND PLASTER.			
Trade Word.			Price.	Trade Word.			Price.
Concession.	No. 20,	4 Circuit, Main Line..	\$1.25	Concise.	No. 30,	4 Circuit, Main Line..	\$1.50
Conch.	No. 21,	2 " " " ..	1.15	Concisely.	No. 31,	2 " " " ..	1.30
Conciliate.	No. 22,	4 " " Terminal..	1.25	Conciseness.	No. 32,	4 " " Terminal..	1.50
Conciliation.	No. 23,	2 " " " ..	1.15	Conclave.	No. 33,	2 " " " ..	1.30

BRANCH JUNCTION BOXES.

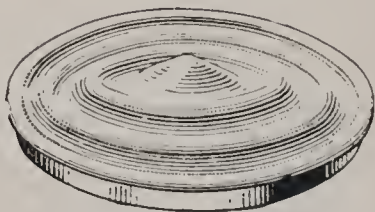
TWO HOLE.



THREE HOLE.



COVER.



Brass (with Lock).

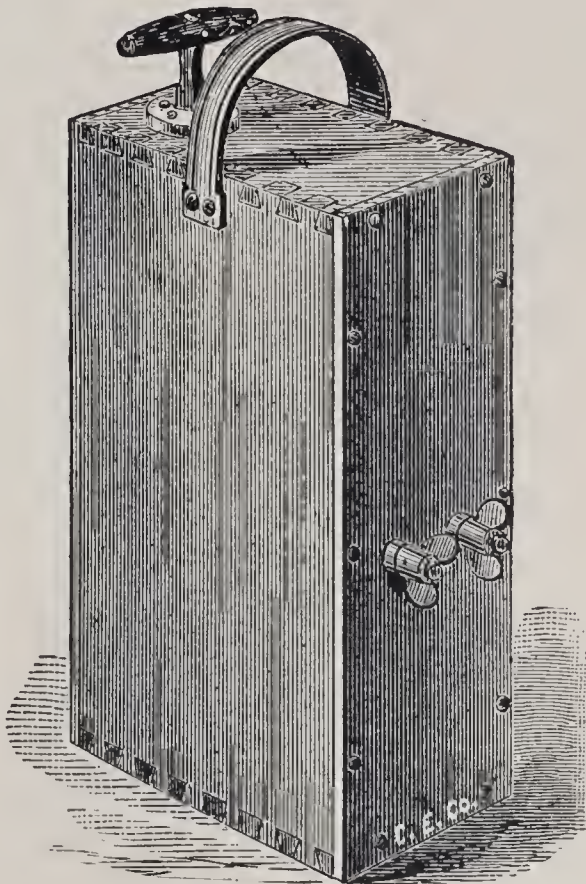
Trade Word.	Price.	Trade Word.	Price.	Trade Word.	Price.
Conclude.....	\$0.25	Concluding.....	\$0.25	Conclusive.....	\$0.30

For Explanation of Trade Word see page 4.



ELECTRO-MAGNETO BLASTING MACHINES.

SMITH'S MAGNETO BLASTING MACHINE.



Trade Word.		Price.
Conductor.	To fire 10 to 20 holes.....	\$ 50.00
Cone.	To fire 20 to 40 holes.....	100.00

DIRECTIONS.

Lift the toothed rod to its full length, then press it down, for the first inch of its stroke, with moderate speed, but finishing the stroke with all force, bringing the rod to the bottom of the box with a solid THUD, and the blast will be made.

CAUTION—It has been learned that some persons, in using the machine, move the rack-bar several times up and down, with a churning motion, before giving the final stroke. There is no reason in this practice, and it is likely to damage the machine or make it entirely useless. In forcing down the rack-bar, a certain amount of heat is communicated to parts of the apparatus; with but one stroke this is not sufficient to harm, and is almost immediately dissipated; but by several strokes in quick succession, heat may be generated faster than it can be dissipated, and thus there may be so much accumulated in certain parts as to destroy them.

The Smith Blasting Machine is a magneto-electric instrument of small size, weighing only about twenty-two pounds, occupying considerably less than one-half a cubic foot of space.

It is constructed on the Wheatstone and Siemen's principle, having a magnet of the horseshoe character, of iron, wound about with coils of insulated copper wire; between the poles of the magnet there is fitted to revolve an armature of cylindrical construction, carrying in its body other insulated wire coiled longitudinally, as to the cylinder.

The rapid revolution of the armature, by suitable means, generates and sustains in the machine an accumulative current of voltaic electricity of great power, which at the moment of its maximum intensity is, practically, switched off to the outside circuit in which are the exploders, and in the interior of each exploder the ignition is accomplished instantly.

For Explanation of Trade Word see page 4.



# ELECTRO - MAGNETO BLASTING MACHINES.

## THE VICTOR No. 2.

## THE VICTOR No. 1.

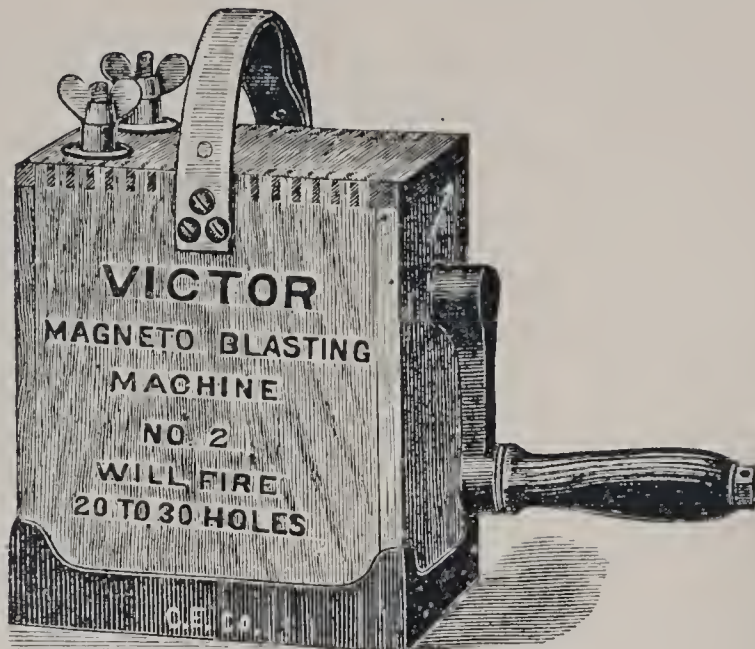


Will fire 5 to 8 holes.

Trade Word.

Confab.....\$30.00

Price.



Will fire 20 to 30 holes.

Trade Word.

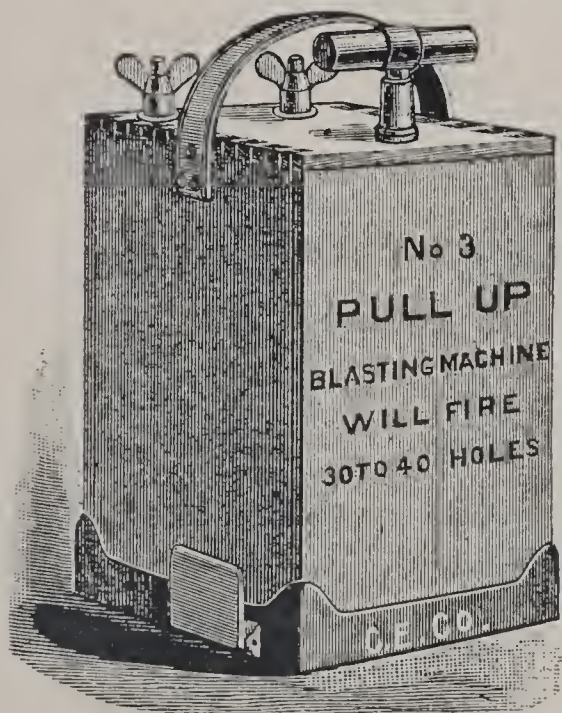
Confection.....\$45.00

Price.

### DIRECTIONS.

Place the handle over the arrow point marked on the box, turn it downward with a very quick and sudden jerk, and the blast will take place. Half a turn of the handle from the mark is sufficient; but, if failing to go off first time, repeat same motion more quickly. The firing will never fail if you push quickly, as directed. The strength of current depends upon the rapidity with which the handle is turned.

## “PULL UP” BLASTING MACHINES.



No. 3 will fire 30 to 40 holes.

Trade Word.

Confederacy.....\$50.00

Price.



No. 4 will fire 60 to 70 holes.

Trade Word.

Confederate.....\$100.00

Price.

### DIRECTIONS.

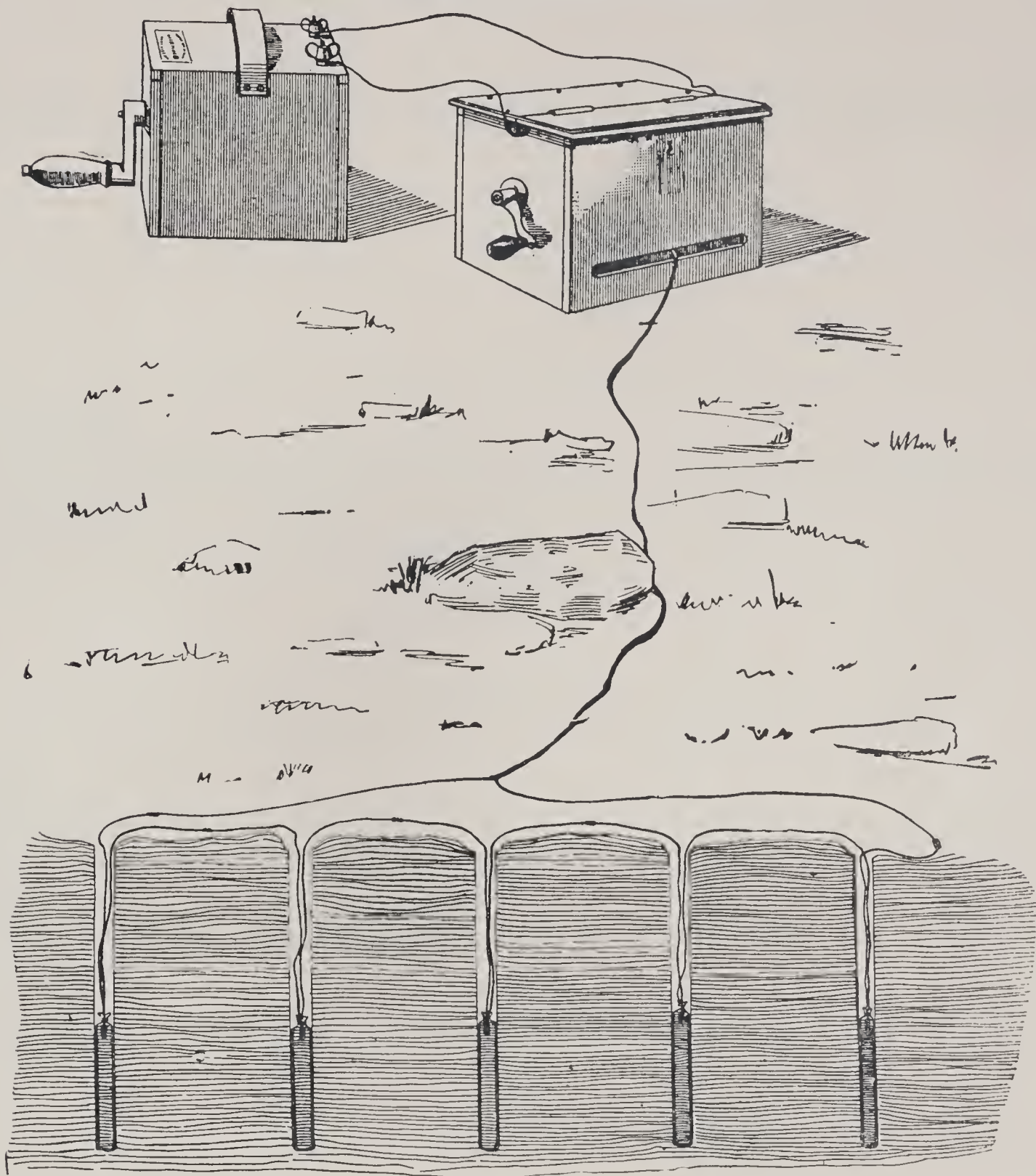
To fire with a “Pull Up” Machine, turn down the hinged iron plates at the bottom of the box; stand on these plates to hold the machine firmly down; then pull up the bar quickly *with one continuous stroke*—with both hands—when the blast will take place. After firing the bar will drop back into its place, and is ready to be used again. Make sure the bar is all the way down when starting to pull it up. The quicker you pull up the bar the more current the machine will generate. In pulling up the bar increase the stroke as you come up, but don’t stop half way; it must be one continuous stroke from start to finish.

For Explanation of Trade Word see page 4.



ELECTRO-MAGNETIC BLASTING MACHINES.

REEL BOXES AND CABLE.



The above cut represents the manner of firing several holes simultaneously by means of Magneto Blasting Machine and Improved Reel Box and Cable.

Trade Word.		Price.
Confer.	Reel Box.....	\$10.00
Conference.	Reel Box with 250 feet of Cable complete.....	18.00

EXPLODERS.



CUT NEARLY ACTUAL SIZE.

A, the shell of copper, having a corrugation, thrown out from the inside, which holds the sulphur cement more firmly in place. B, chamber containing the charge of explosive, composed mainly of fulminate of mercury—very powerful. C, the copper wires, entering the shell, having a covering which is a partial insulator sufficient for all ordinary purposes. D, the bare ends of the copper wires, projecting above the sulphur cement and into the charge. E, the very fine platinum wire, or bridge, soldered to and connecting the two ends of the wires, which is heated to redness or combustion by the passage of the electric current. F, the sulphur cement holding the wires firmly in place.

Trade Word.		Price.	Trade Word.		Price.
Confess.	Cotton-Covered, 4 ft. Wires, per 100,	\$ 6.00	Confidently.	Cotton-Covered, 18 ft. Wires, per 100,	\$13.50
Confessedly.	“ “ 6 “ “	7.00	Confiding.	“ “ 20 “ “	15.00
Confessing.	“ “ 8 “ “	8.00	Confine.	“ “ 22 “ “	17.00
Confessor.	“ “ 10 “ “	9.25	Confirm.	“ “ 24 “ “	18.75
Confidant.	“ “ 12 “ “	10.25	Confiscate.	“ “ 26 “ “	20.50
Confide.	“ “ 14 “ “	11.40	Confiscating.	“ “ 28 “ “	22.50
Confidence.	“ “ 16 “ “	12.50	Confiscator.	“ “ 30 “ “	25.00

For Explanation of Trade Word see page 4.



## TOOLS.

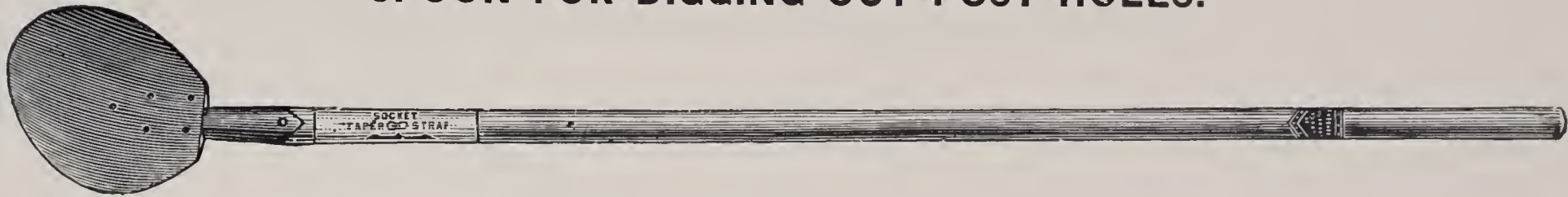


IT has been our aim in listing this class of goods to show only such as are of a superior quality and workmanship, and which will be of practical use in the various departments of electrical work.



TOOLS.

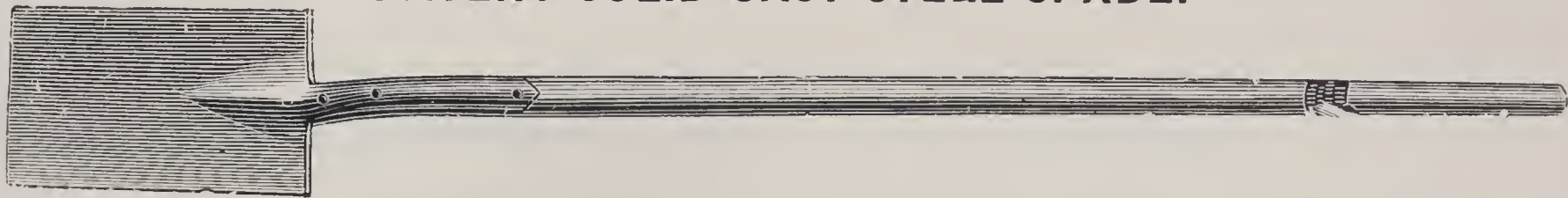
SPOON FOR DICGING OUT POST HOLES.



Size 10 x 8¼ inches.

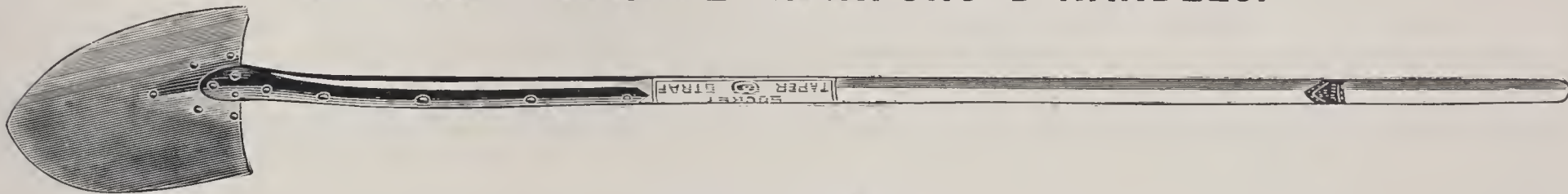
Trade Word.			Price.
Conflagration.	7 foot handles.....	per doz.,	\$32.00
Conflict.	8 ".....	"	35.00

PATENT SOLID CAST STEEL SPADE.



Trade Word.		Price.
Conflicting.	7 foot handle.....	per doz., \$32.00

POST HOLE SHOVEL—REINFORCED HANDLES.



ROUND POINTS.

Trade Word.		Price.
Conflictive.	6 foot handles.....	per doz., \$32.00
Confluence.	7 ".....	" 32.00
Confluent.	8 ".....	" 35.00

EUREKA POST HOLE DICGER.



Trade Word.		Price.
Conform.....		each, \$3.50

POST HOLE AUGERS.



Trade Word.		Price.
Conformable.	12 inch hole.....	\$8.00
Conformation.	14 ".....	9.00

For Explanation of Trade Word see page 4.

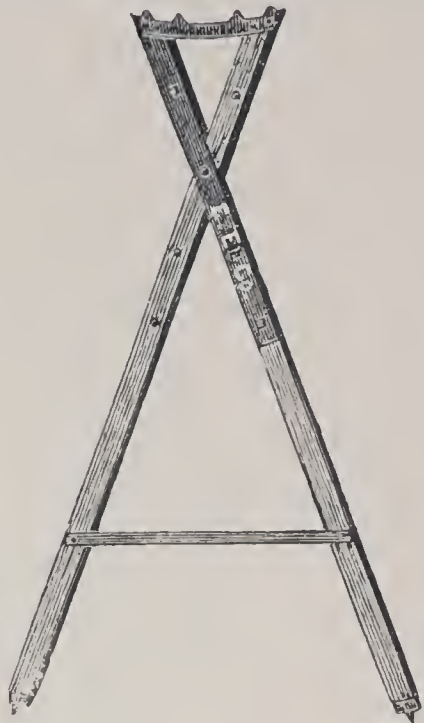
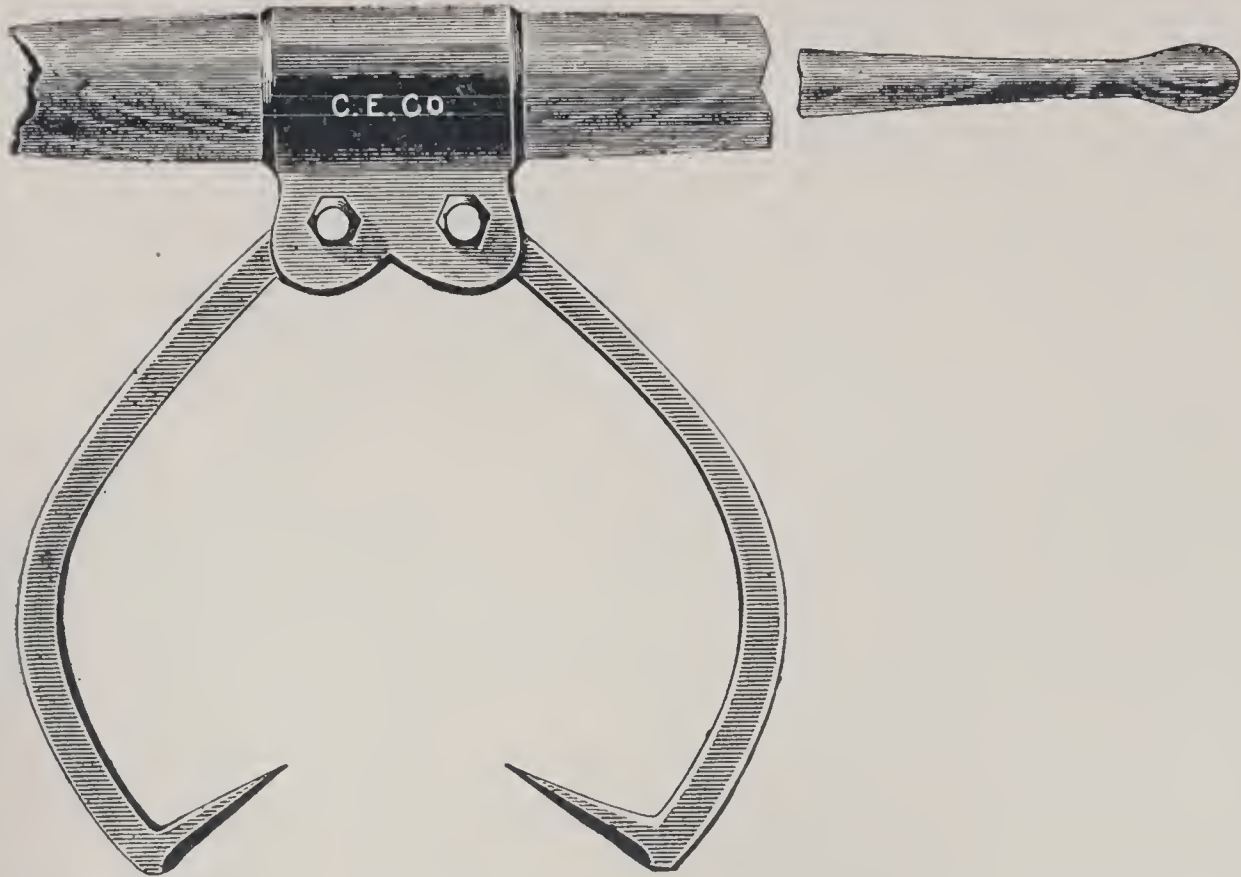






LIFTING AND CARRYING HOOKS.

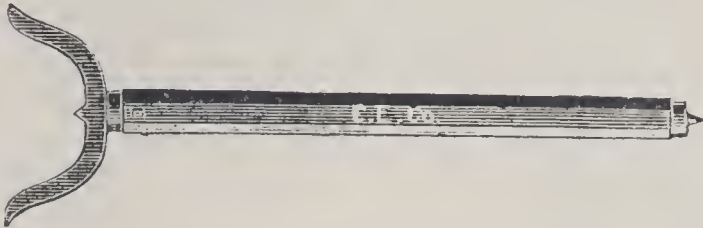
POLE SUPPORTS.



Trade Word.	Price.
Confuse . . . . .	each, \$6.00

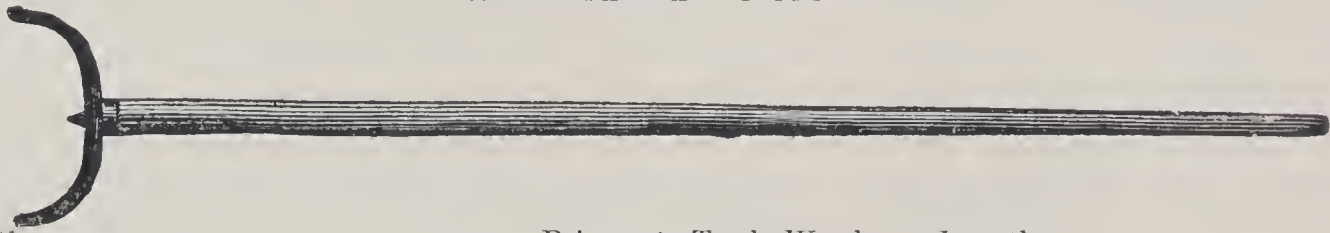
Trade Word.	Height.	Price.
Congeneracy.	4½ feet. . . . .	\$10.00
Congeneric.	6 " . . . . .	11.00
Congenial.	7½ " . . . . .	12.00

MULE PATTERN.



Trade Word.	Height.	Price.
Congelation.	4½ feet . . . . .	\$6.00
Congener.	6 " . . . . .	6.50
	7½ " . . . . .	7.04

GUARDED PIKE.



Trade Word.	Length.	Price.	Trade Word.	Length.	Price.
Confused.	8 feet. . . . .	\$1.50	Confusion.	16 feet. . . . .	\$2.50
Confusedly.	10 " . . . . .	1.75	Confutable.	18 " . . . . .	2.75
Confusing.	12 " . . . . .	2.00	Confutation.	20 " . . . . .	3.00

PLAIN PIKE.



Trade Word.	Length Of Pole.	Price.	Trade Word.	Length of Pole.	Price.
Confute.	12 feet. . . . .	\$3.00	Confuting.	18 feet. . . . .	\$5.00
Confuted.	16 " . . . . .	4.00	Congeval.	20 " . . . . .	6.00
	Without Pole. . . . .	\$0.60			

CANT HOOK.



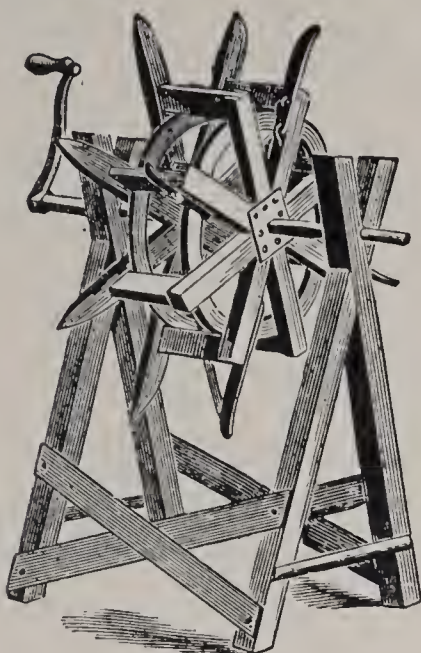
Trade Word.	Price.	Trade Word.	Price.
Congeeing.	With handle. . . . . \$2.50	Congeealment.	Without handle . . . . . \$1.25

For Explanation of Trade Word see page 4.



## TOOLS.

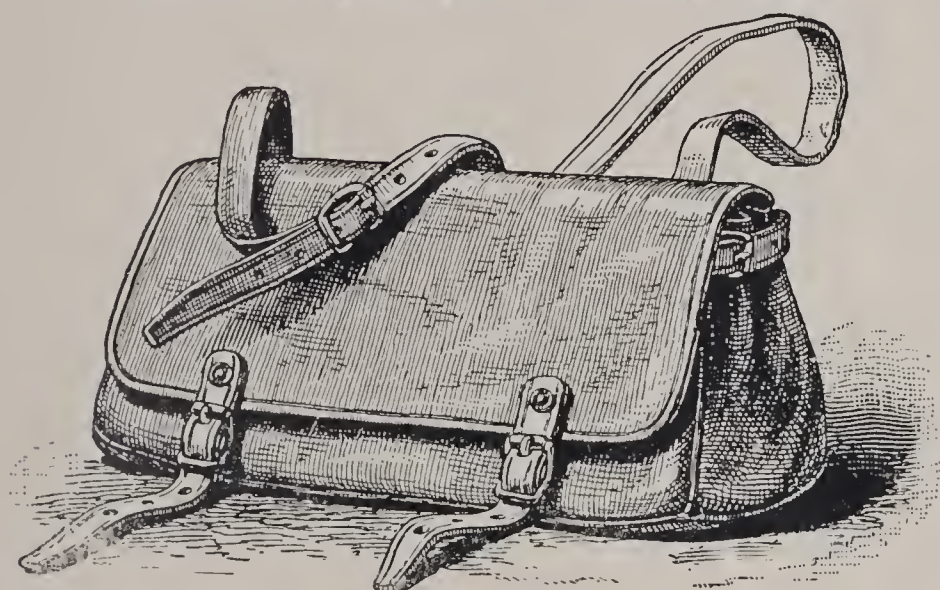
### TAKE-UP REELS.



Trade Word.  
Congenialize.....each, \$12.50

Price.

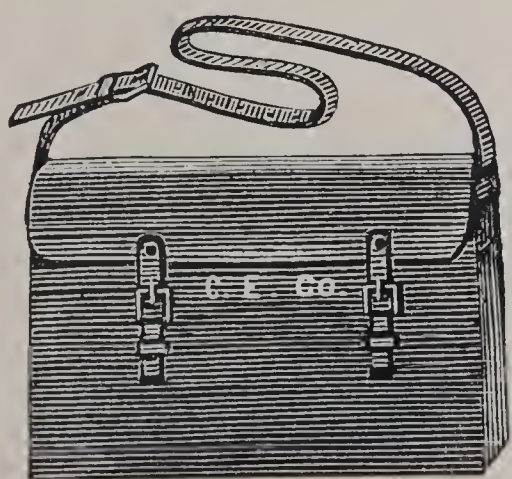
### WESTERN UNION TOOL BAG.



Best Russet Leather. Has separate outside pocket for saw.

Trade Word.  
Congo ..... Price.  
\$6.50

### STANDARD TOOL BAG.

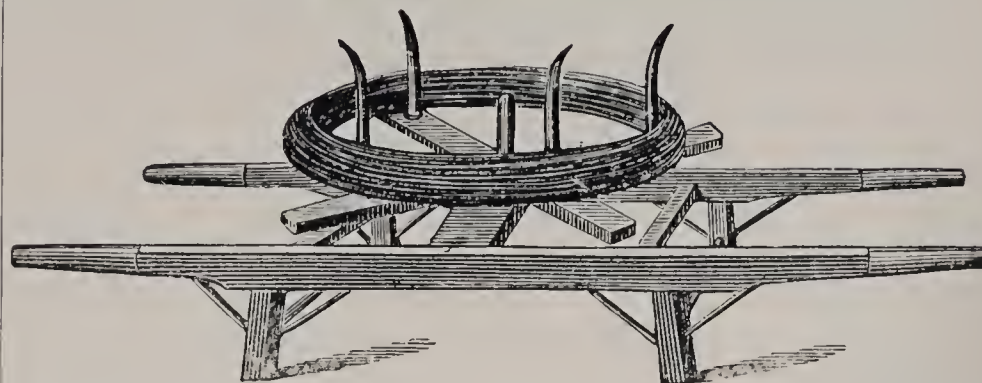


Made of best Black Leather.

Trade Word.  
Congratulation. With Handle.....\$4.00  
Congratulatory. With Shoulder Straps..... 5.00

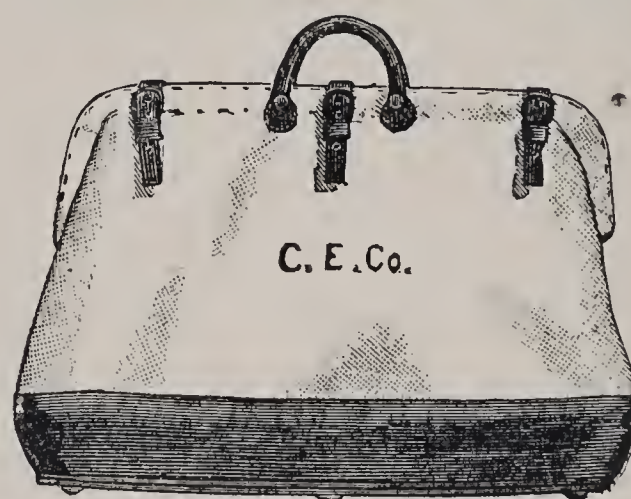
Price.

### LINE WIRE REELS.



Trade Word.		Price.
Congenital.	Fitted on Barrow.....	\$15.00
Congestion.	Fitted up for Wagon.....	15.00
Conglomerate.	Reel Straps.....each,	2.50

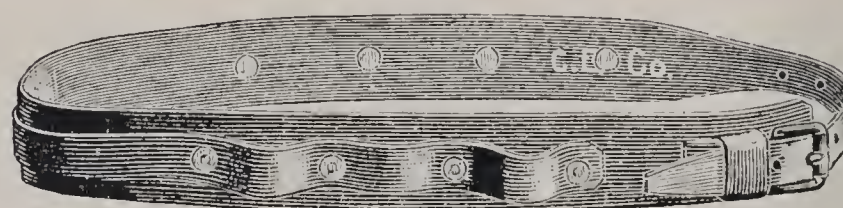
### LINEMEN'S TOOL BAG.



Made of strong canvas. Leather trimmings.  
Trade Word.  
Congratulate..... Price.  
\$5.00

Price.

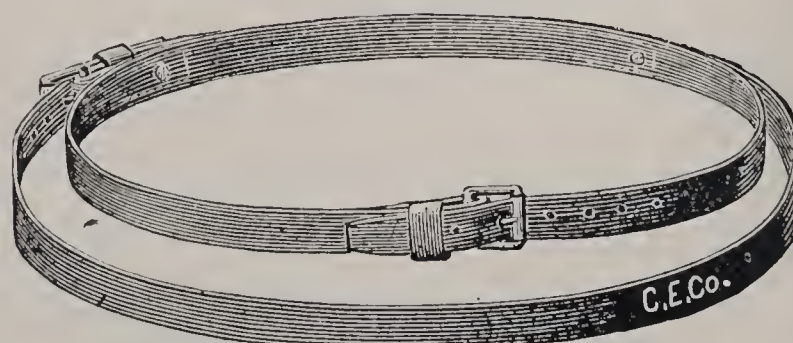
### LINEMEN'S TOOL BELT.



Best leather.  
Trade Word.  
Congregate..... Price.  
\$1.50

Price.

### LINEMEN'S BODY BELT.



Best leather.  
Trade Word.  
Congregating..... Price.  
\$2.00

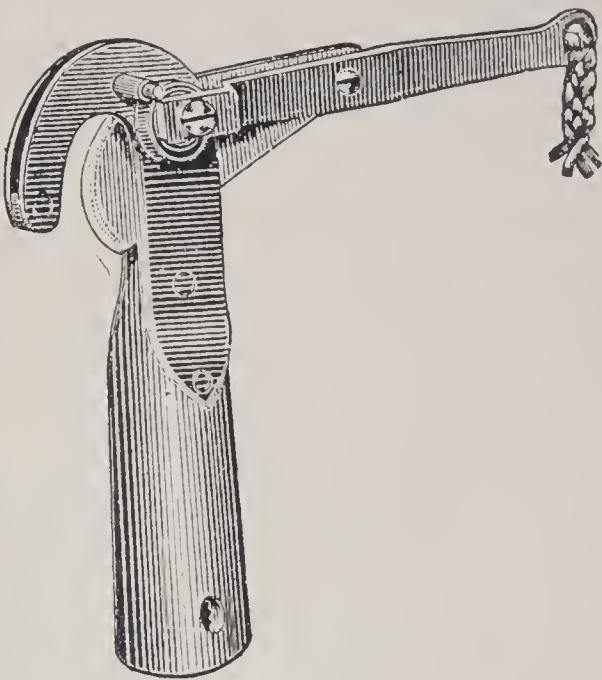
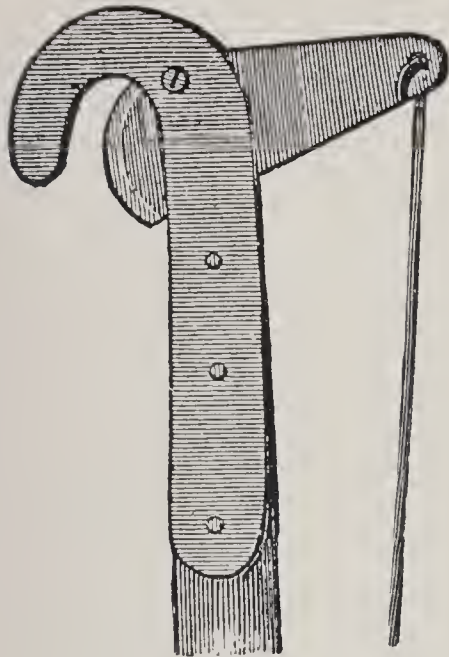
Price.

For Explanation of Trade Word see page 4.



TOOLS.

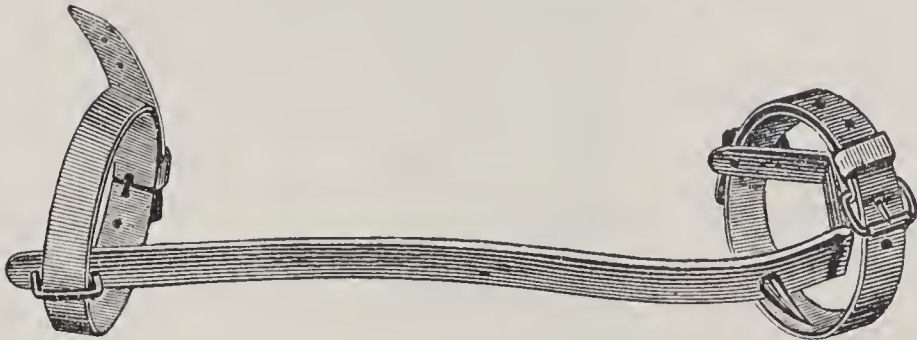
TREE TRIMMERS.



Trade Word.	Length of Handle.	Price.
Congregation.	6 feet.	\$2.50
Congregational.	8 "	2.75
Congress.	10 "	2.75

Self-opening, steel coiled spring, extra heavy for large branches, no handles.	
Trade Word.	Price.
Congressional	\$2.00

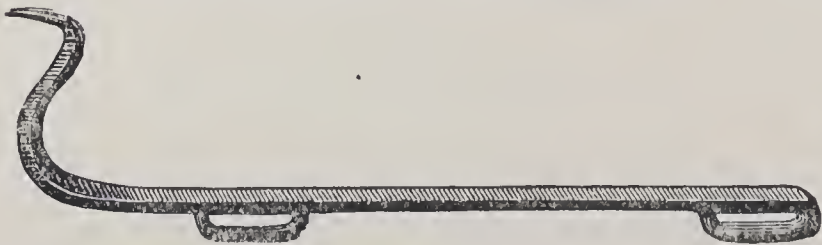
EASTERN CLIMBERS.



No. 1895.

Trade Word.		Price.
Congressive.	With Straps.....	per pair, \$4.00
Congreve.	Without Straps.....	" 2.00

WESTERN CLIMBERS.



Trade Word.		Price.
Congruity.	With Straps.....	per pair, \$4.00
Congruous.	Without Straps.....	" 2.00

WELDON CLIMBERS.

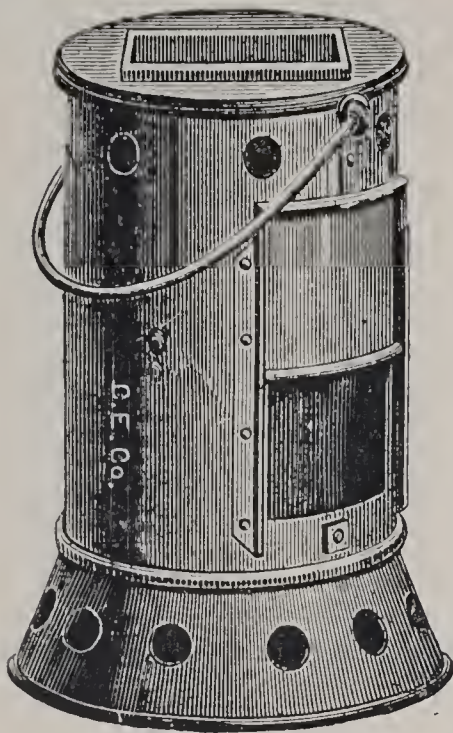
Trade Word.		Price.
Conical.	With Straps.....	per pair, \$3.50
Conically.	Without Straps.....	" 2.50

For Explanation of Trade Word see page 4.



SOLDERING OUTFITS.

IMPROVED LINEMAN'S FIRE POT.

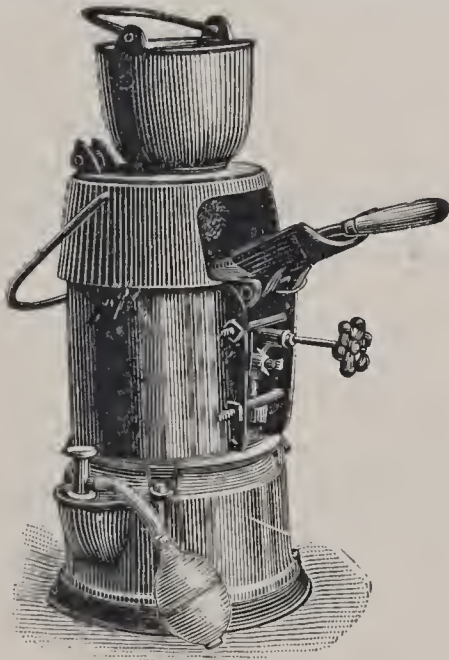


Among the many advantages of this form of Soldering Furnace is the one that when charcoal can not be obtained, wood may be readily burned in it for heating irons.

Complete with iron grate and oblong soldering pot.

Trade Word.	Price.
Conifer.....	each, \$5.00

COMBINATION FURNACE AND FIRE POT.



We take pleasure in calling attention to the combined Tinnners' and Plumbers' Furnace and Fire Pot, being so arranged that it is equally well adapted to both uses, thereby saving the cost of one furnace, as the Tinner can, if desired, melt his own solder, and the Plumber heat his own copper. The above cut shows that by throwing back the hinged lid a place is provided for the solder pot. The burner is entirely new, and the most powerful ever invented. It will heat a 6-lb. copper in less than four minutes, and melt 10 lbs. solder in eight minutes. The burner is noiseless, which removes the serious objection heretofore existing against furnaces and fire pots. The furnace as arranged is absolutely non-explosive, being provided with an air blast which supplies the necessary pressure to force the fluid to the burner, instead of the elevated tank, and being made portable, can be used on roofs, or wherever a furnace can be used. It is conceded by experts that for power, convenience and economy, this Combined Furnace and Fire Pot is the first absolute success.

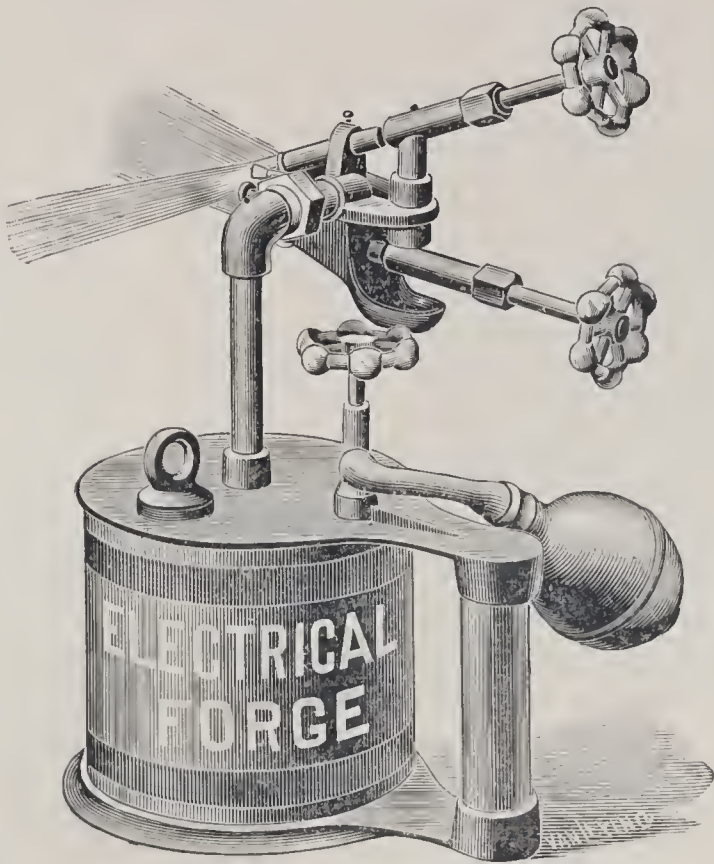
Trade Word.	Price.
Coniform. Including Soldering Pot. ....	each, \$12.00

For Explanation of Trade Word see page 4.



SOLDERING OUTFITS.

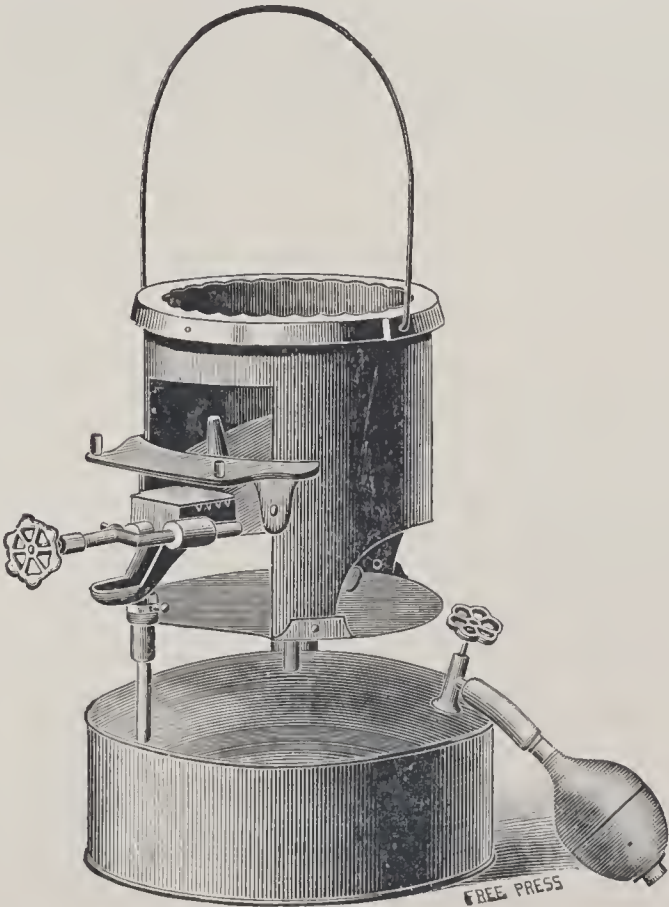
ELECTRICIAN'S TORCH.



Is the most complete article in the market for the use of Electricians or Linemen, and for wiring. It is safe, durable, easily repaired, has a reversible burner that can be used in any position, will not blow out in a gale of wind. Can be used as a blow-pipe Torch, or a Fantail Heater, and can be instantly changed from an intense heat to a feeble flame, or the reverse.

Trade Word. Price.  
Conjecture.....each, \$6.00

No. 1 "HELPER" FORCE.




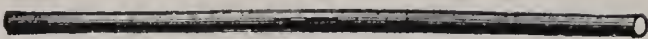
Can be used by Linemen and others for melting Metal to dip Connection Joints in, or for heating Soldering Irons. It can also be taken apart and used as a reversible torch. It will work in a gale of wind, and one-half gallon of 74° deodorized gasoline will run it, with full force, for a days' work. It is safe. Made to stand hard work, and easily repaired.

Trade Word. Price.  
Conjoin.....each, \$6.00

For Explanation of Trade Word see page 4.



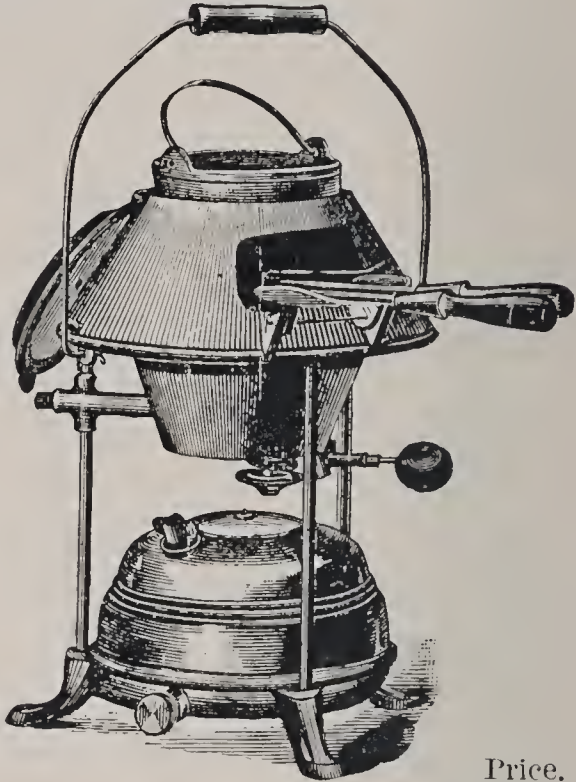
SOLDERING OUTFITS.

			
Trade Word.			Price.
Conjoint.	Solder, best quality, in bars. ....	per lb.,	\$0.40
Conjointly.	“ “ in strip .....	“	.35
Conjugal.	Solder pots, round, 6 inch diameter.....		1.50
Conjugate.	“ “ oblong, same capacity as above.....		1.50
Conjunct.	Soldering salts, per ½ lb. bottle.....		.60
Conjunction.	“ “ “ 1 “ “ .....		1.00
Conjunctive.	“ “ “ 5 “ “ .....		5.00

THE WELLINGTON AUTOMATIC GASOLINE SOLDERING FURNACE.

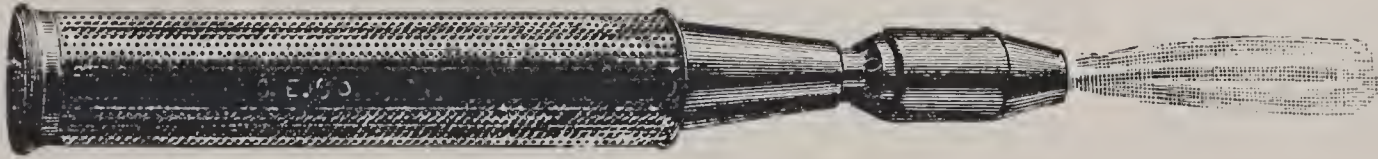
Its Points of Merit are:

- 1st.—The Automatic Valve Air Pump, used to force cold air into the reservoir, creates a steady, stiff pressure, thus producing a perfect blast of intense heat. It entirely does away with the extra valves, rubber balls, human lungs, etc., other furnaces require.
- 2d.—It also does away with the danger arising from deflecting heat from the burner to the reservoir, to vaporize and expand the oil, to keep up the pressure.
- 3d.—The “cold air pressure” reservoir never becomes heated.
- 4th.—The Burner is made of brass, solid, simple, with no passage to become clogged.
- 5th.—The heat may be controlled by simply turning a screw.
- 6th.—It consumes 72° to 76° specific gravity of naphtha or gasoline, which burns longer and costs less than 85° to 90° gravity.
- 7th.—Reservoir is oil and air tight, with no danger from upsetting.
- 8th.—Made wholly of brass and galvanized cast-iron.



Trade Word.		Price.
Conjuncture.....	each,	\$15.00

GASOLINE FURNACES AND TORCHES.

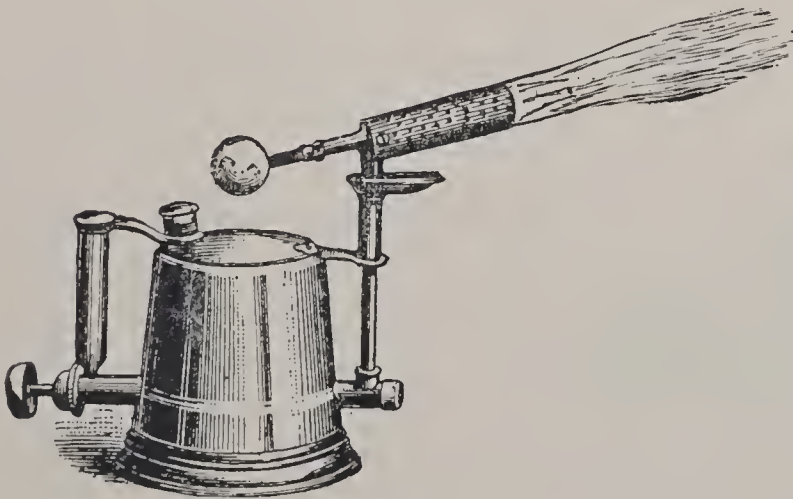


The Perfect Control Gasoline Soldering Torch, \$6 00.

The handiest form for the hand and for the tool bag.

Trade Word.		Price.
Conjure.....	each,	\$9.00

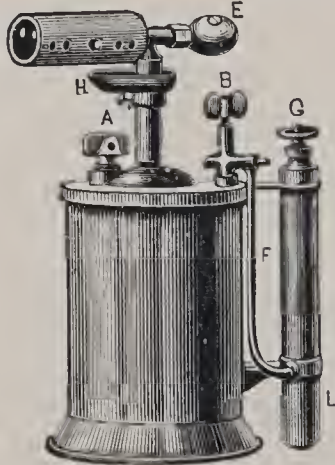
THE WELLINGTON AUTOMATIC GASOLINE SOLDERING TORCH.



Flame can be regulated to any desired size by simply turning a screw, thus keeping the heat constantly under complete control.

Trade Word.	Price.
Conjurer .....	each, \$9.00

GASOLINE BLOW-PIPE.



This gives a very hot flame and is especially designed for soldering electric light wires. It can also be used for any kind of soldering, brazing, tempering and general shop use.

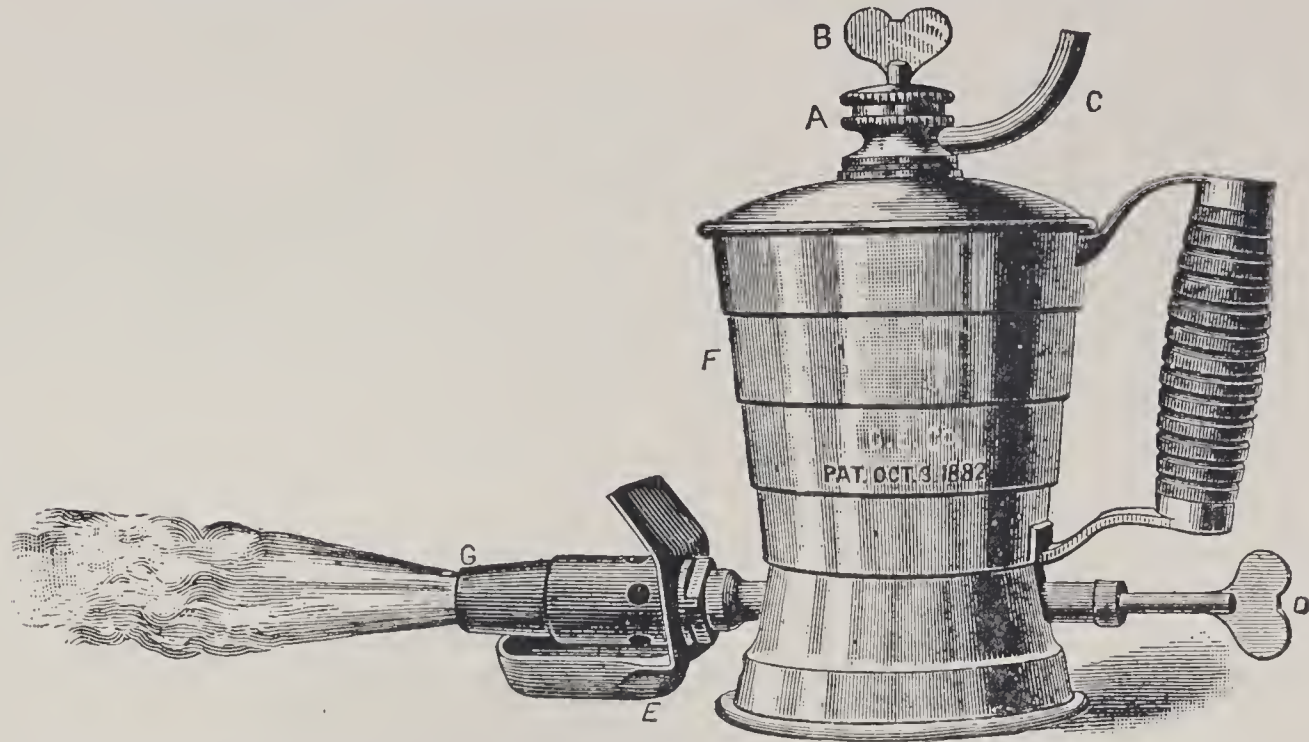
Trade Word.	Price.
Connate .....	each, \$7.50

For Explanation of Trade Word see page 4.



## SOLDERING OUTFITS.

### ACME SELF-ACTING GASOLINE SOLDERING TORCH.



1. Economy in producing immense heat.
2. Simplicity and strength of construction.
3. Self-acting while in operation.
4. The size of flame is increased or diminished by turning needle screw D.
5. Its weight is  $1\frac{3}{4}$  lbs. and capacity  $1\frac{1}{2}$  pints.

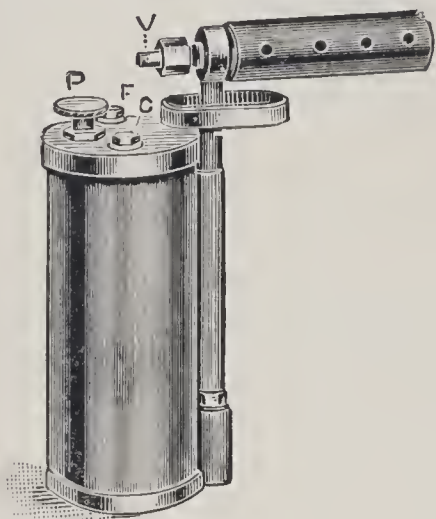
Trade Word.

Connect. .... each, \$8.00

Price

### WALSH GASOLINE BLOW-PIPE TORCH.

### WALSH GASOLINE SOLDERING TORCH.



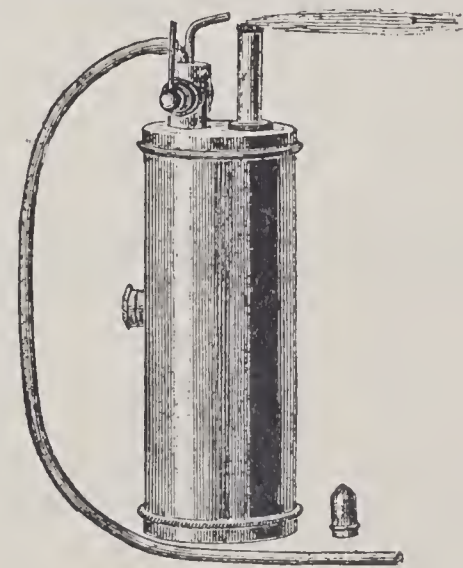
Patented.

Gives an intense heat, and is so compact that it can be carried about without inconvenience.

Trade Word.

Price.

Connected. Size,  $6 \times 2\frac{1}{2}$  in. .... each, \$6.00



Patented.

A very useful torch for repair work, as it can easily be carried to the top of a pole. Has no parts to get out of order. Flame can be regulated to suit. Gives an intense heat.

Trade Word.

Price.

Connecting. Size,  $6 \times 2\frac{1}{2}$  in. .... each, \$5.00

### AUTOMATIC ALCOHOL LAMP AND BLOW-PIPE COMBINED.



Trade Word.

Connection. 6 in. Lamp ..... each, \$4.00  
Connectively. 4 " " ..... " 2.50

Price.

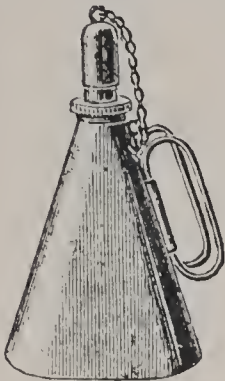
For Explanation of Trade Word see page 4.



SOLDERING OUTFITS.

LINEMAN'S TORCH.

For Alcohol.



Trade Word.		Price.
Connivance.	Tin.....each,	\$1.50
Connive.	Brass.....“	2.00

SMALL ALCOHOL SOLDERING LAMP.



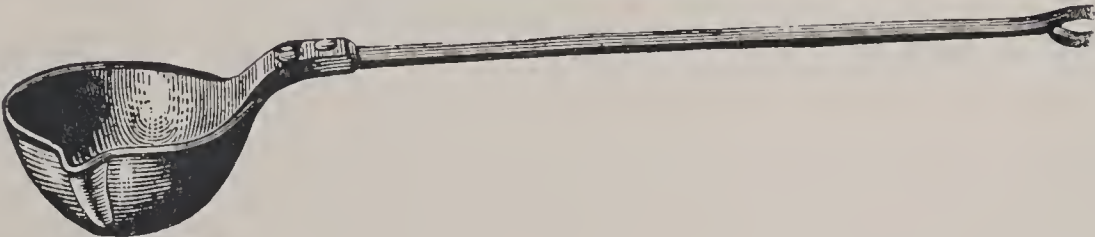
Trade Word.	Price.
Conniver .....	each, \$0.50

BLOW PIPE.



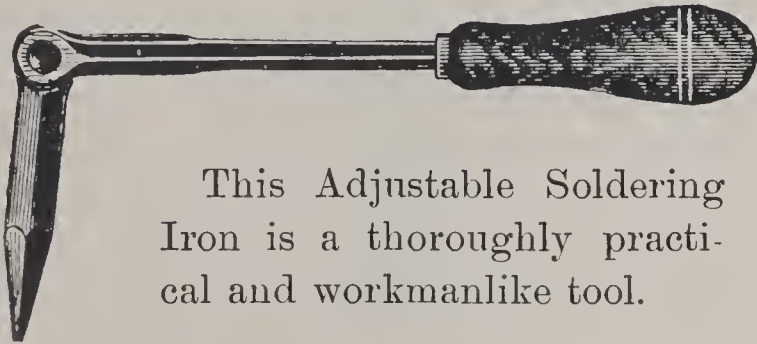
Trade Word.		Price.
Conniving.	9 inch, with ball.....each,	\$0.25

SOLDER LADLE.



Trade Word.	Price.
Connoisseur .....	each, \$1.00

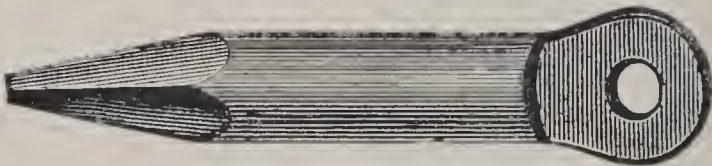
PATENT ADJUSTABLE SOLDERING IRON.



This Adjustable Soldering Iron is a thoroughly practical and workmanlike tool.

Trade Word.	Diameter of Copper.	Price.
Connubial.	$\frac{3}{4}$ inch.....per doz.,	\$10.00
Conquer.	$\frac{7}{8}$ “ .....	12.50
Conquered.	1 “ .....	15.00
Conquering.	$1\frac{1}{8}$ “ .....	19.00
Conqueror.	$1\frac{1}{4}$ “ .....	21.50

PATENT ADJUSTABLE COPPER.



Trade Word.	Diameter.	Price.
Conquest.	$\frac{3}{4}$ inch.....per doz.,	\$ 5.50
Conscience.	$\frac{7}{8}$ “ .....	7.60
Conscienceless.	1 “ .....	9.00
Conscientious.	$1\frac{1}{8}$ “ .....	12.50
Conscionable.	$1\frac{1}{4}$ “ .....	15.00

SOLDERING COPPERS.



Trade Word.	Weight per pair.	Price.
Conscious.	$1\frac{1}{2}$ lbs.....each,	\$1.00
Conscript.	2 “ .....	1.20
Conscription.	3 “ .....	1.80
Consecrate.	4 “ .....	2.40
Consecrated.	5 “ .....	3.00
Consecration.	6 “ .....	3.60
Consecutive.	8 “ .....	4.80

For Explanation of Trade Word see page 4.







TOOLS.

COMBINED ECCENTRIC CLAMPS, PULLEYS AND TACKLE.



FOR LIGHT WORK.

The pulley frame and clamp bed is a single casting of solid brass metal, making a very compact and strong tool. The sheaves are also of brass, one inch in diameter, and accommodate a  $\frac{1}{4}$  inch rope. The eccentric clamp lever is of solid steel.

Trade Word.		Price.
Consignee.	Complete with rope.....	per pair, \$5.00

WOOD PULLEY BLOCKS AND ECCENTRIC CLAMP COMBINED.



Trade Word.		Price.
Consigning.	3½ inch blocks for regular work, with clamps that hold up to No. 8 wire, complete with 60 ft. rope.....	\$5.00
Consignment.	3½ inch blocks, with clamps, without rope.....	4.50
Consist.	5 inch blocks, for heavy work, with clamps that hold up to No. 2 wire, complete with 60 ft. rope.....	8.00
Consistency.	5 inch blocks, with clamps, without rope.....	7.50

WOOD TACKLE BLOCK.



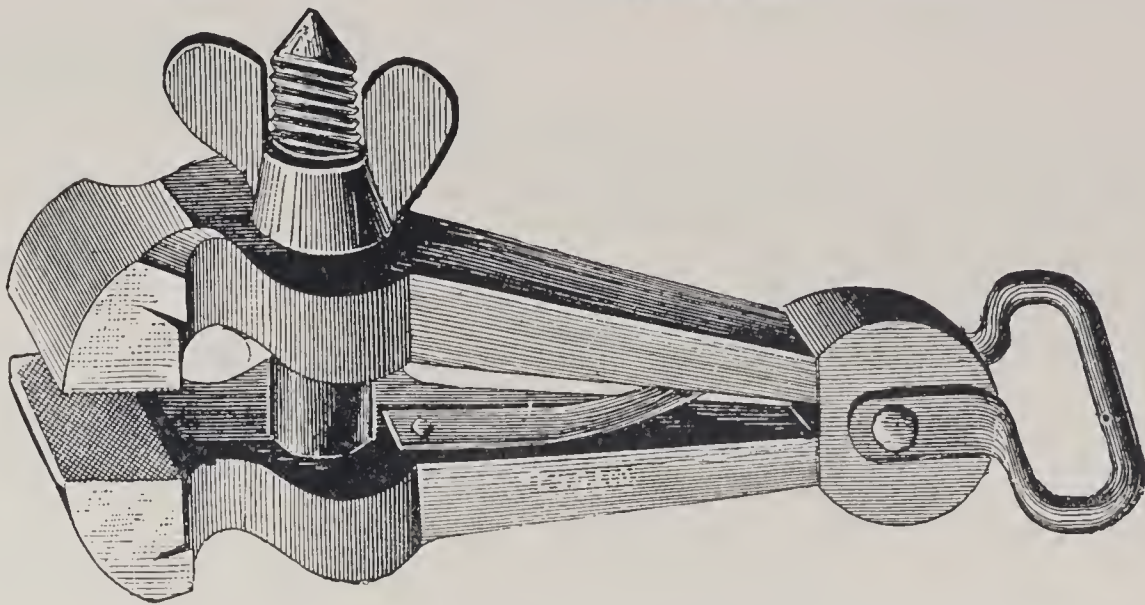
WITH BECKET AND LOOSE HOOK.

Trade Word.	Dimensions.		Price per Doz.	Trade Word.	Price per Doz.
	Size.	Diam. of Rope.	Single.		Double.
Consistent .....	3½ inch.	$\frac{3}{8}$ inch.	\$1.50	Consolably.....	\$2.90
Consisting.....	4 “	$\frac{1}{2}$ “	1.70	Cosolablink.....	3.20
Consistory .....	5 “	$\frac{5}{8}$ “	1.80	Consolablot.....	3.50
Consolable. ....	6 “	$\frac{3}{4}$ “	2.20	Consolablur ....	4.00

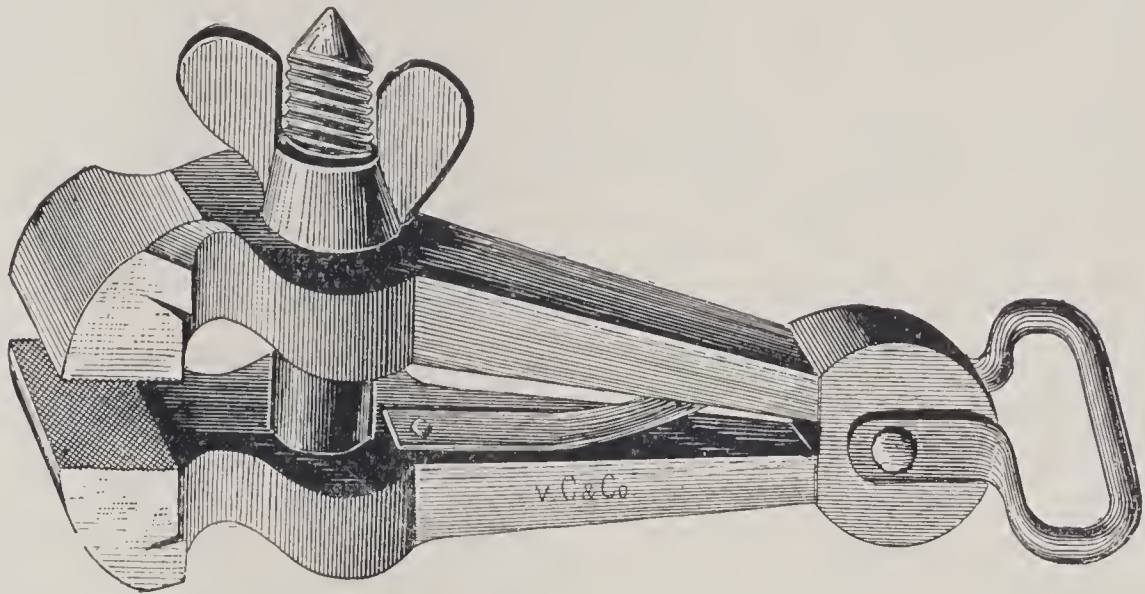
For Galvanized Iron Pulley Blocks, see page 111.  
For Tackle Blocks, see page 112.  
For Clark's Patent Pulley Blocks, see page 113.  
For Explanation of Trade Word see page 4.



TOOLS.  
THE "C. E. CO." LINEMAN'S VISES.

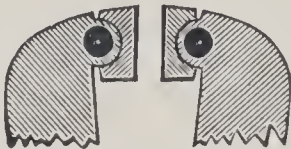
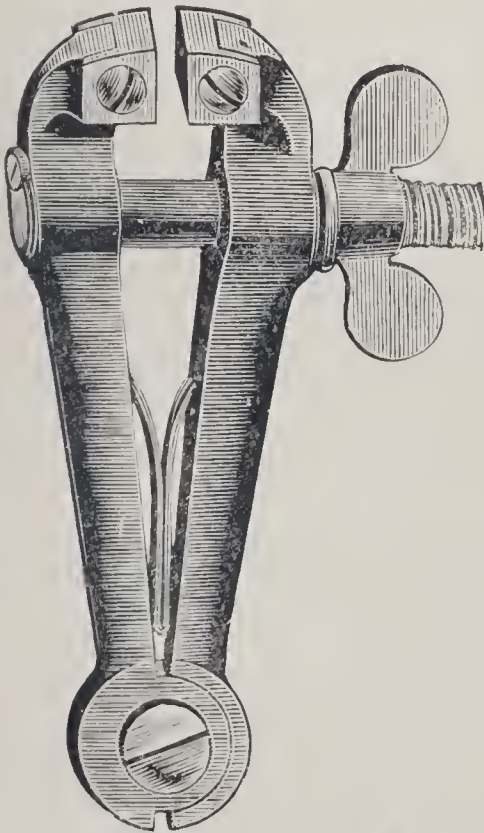


Trade Word.	This is an imported Vise and equal to any on the market			
Consolation.	5 in.,	without loop,	extra quality	each, \$1.50
Console.	6 "	"	"	" 2.00
Consolidate.	5 "	with	"	" 2.50
Consolidation.	6 "	"	"	" 3.00
Consoling.	Straps			" 1.00



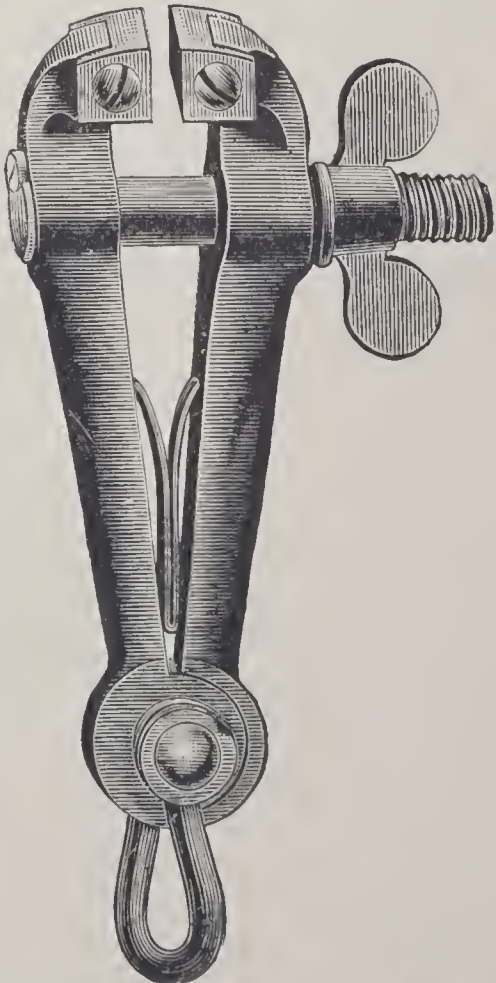
Trade Word.	<b>STUB'S.</b>				Price.
Consonance.	Block extra heavy, best quality,	5½ in.,	without loop	each,	\$2.50
Consonant	"	5½ "	with	"	3.00
Consort.	"	6 "	without	"	3.50
Conspicuous.	"	6 "	with	"	4.00
Conspiracy.	Straps			"	1.00

HALL'S PATENT ADJUSTABLE-FACE VISES.



Section of Jaws showing the Adjustable Faces, which adapt themselves to the form of whatever article they grasp, thereby insuring a firmer grip and causing less strain upon the jaws than in any vise ever before produced.

The superiority of these to all other makes of vises consists in the perfect workmanship of the parts, which are made from the best quality of steel procurable, and are interchangeable, thus admitting of duplication at slight cost.



Extra Rings, per doz., \$3.00

Extra Jaws, per doz., \$3.00

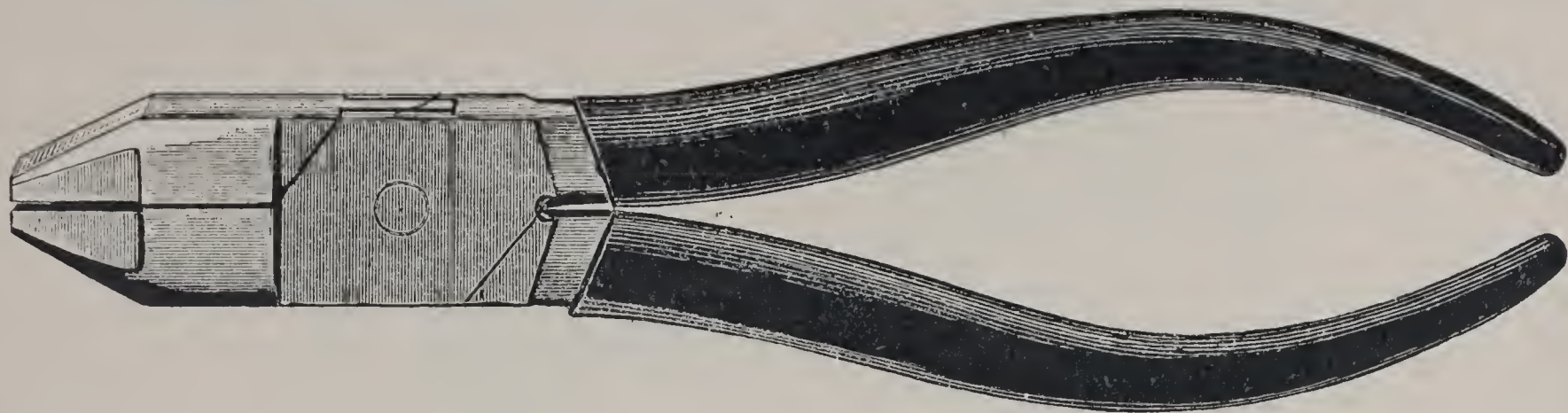
Extra Thumb Nuts, per doz , \$2.50

For Explanation of Trade Word see page 4.



TOOLS.

THE "C. E. CO." ALL STEEL SIDE CUTTING PLYERS.

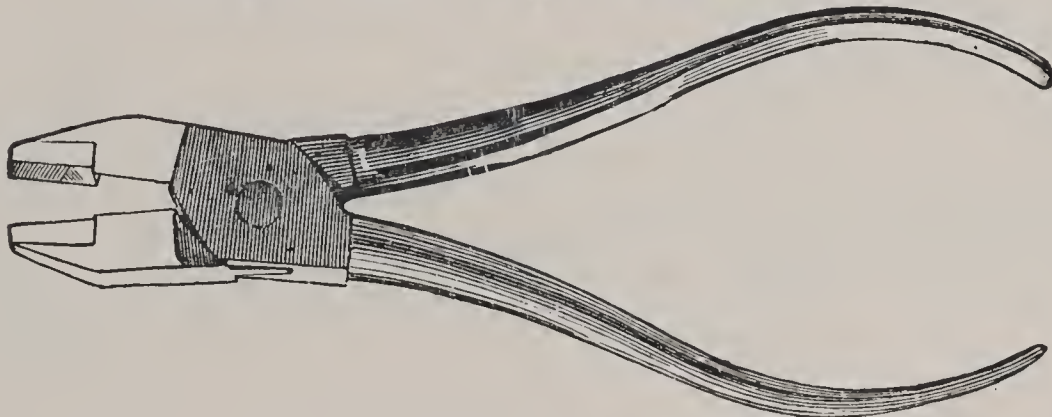


We are direct importers of All Steel Plyers, which are hand forged, made of the best English Steel, and guaranteed to stand more wear, and outlast any other plyer manufactured.

Trade word.	Size.	Price.	Trade word.	Size.	Price.
Constancy.	4 in., plain . . . . .	per doz. \$10.00	Constituent.	4 in., nickel plated	per doz. \$15.00
Constant.	5 " . . . . .	" 10.00	Constitute.	5 " " " "	15.00
Constantly.	6 " . . . . .	" 11.00	Constituting.	6 " " " "	16.50
Constellation.	7 " . . . . .	" 18.00	Constitution.	7 " " " "	25.00
Consternation.	8 " . . . . .	" 24.00	Constitutive.	8 " " " "	30.00

The above will be furnished with insulated handles at an extra charge of \$3.00 per doz., net.

STUBS' SIDE CUTTING PLYERS.



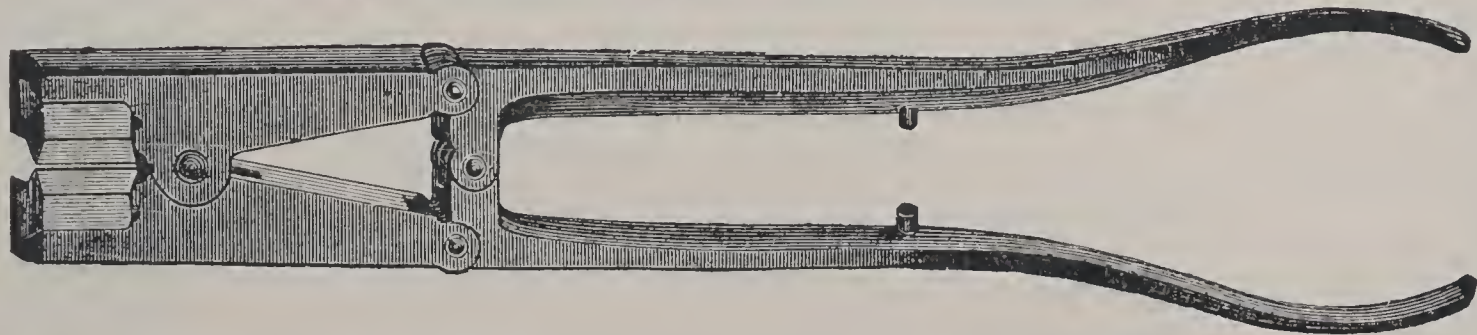
Trade word.	Size.	Price.	Trade word.	Size.	Price.
Constrain.	4½ in., plain . . . . .	per doz. \$10.00	Constricted.	4½ in., nickel plated,	per doz. \$15.00
Constrainedly.	5 " . . . . .	" 10.00	Constriction.	5 " " " "	15.00
Constraining.	6 " . . . . .	" 11.00	Constrictive.	6 " " " "	16.50
Constraint.	7 " . . . . .	" 18.00	Constrictor.	7 " " " "	25.00
Constrict.	8 " . . . . .	" 24.00	Constructure.	8 " " " "	30.00

The above will be furnished with insulated handles at an extra charge of \$3.00 per doz., net.

IMITATION STUBS' SIDE CUTTING PLYERS.

Trade word.	Size.	Price.
Construe.	6 in. . . . .	per doz. \$ 8.00
Construing.	7 " . . . . .	" 10.00
Consubstist.	8 " . . . . .	" 12.00

PATENT GIANT SIDE CUTTING NIPPERS.



REMOVABLE BLADES, TOGGLE JOINTS, INTERCHANGEABLE PARTS.

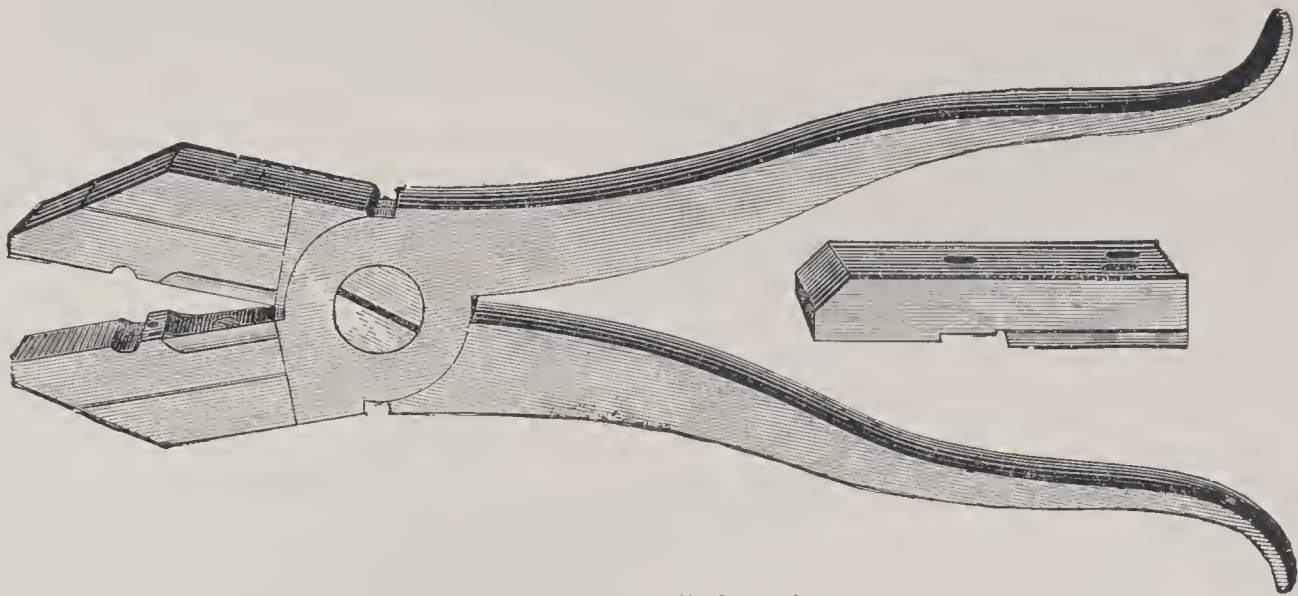
Trade word.	Length, 18 inches. Will cut all wires up to ¾ inch diameter.	Price.
Consul.	.....	each, \$7.50
Consulage.	Extra blades .....	" 1.00

For Explanation of Trade Word see page 4.



TOOLS.

INTERCHANGEABLE TELEGRAPH PLYERS.



(Patent applied for.)

These Plyers have one striking and especial advantage over all others: their parts are interchangeable. They are, therefore, the *cheapest plyers made*, since any part that wears out can be replaced at a slight cost, thus saving the expense of an entire new tool.

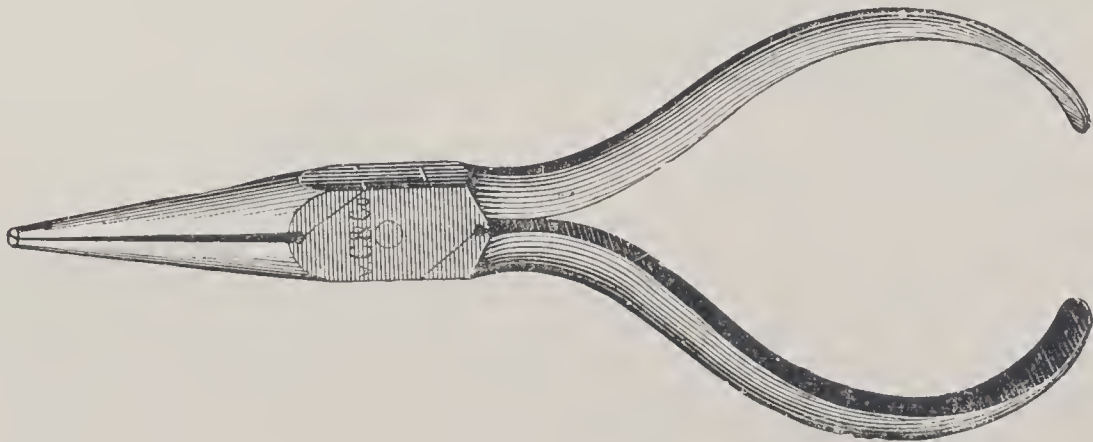
They are drop-forged out of the best quality of steel. The cutting jaws, which are of the finest tool steel, are held in position horizontally the entire length of the jaw (not dovetailed), and secured by screws which cannot be broken or bent under pressure—the simplest and most effective method of attaching jaws yet devised.

By the use of the counterbored joint all danger of bending or breaking the pivotal screw is obviated.

Trade Word.			Price.
Consular.	8-inch Plyers, plain.....	each,	\$2.00
Consulate.	8 “ nickel-plated.....	“	2.50
Consult.	8-inch Jaws.....	“	6.00

CHAIN PLYERS, LONG OVAL POINTS, CAST STEEL, EXTRA QUALITY.

(STUB PATTERN.)



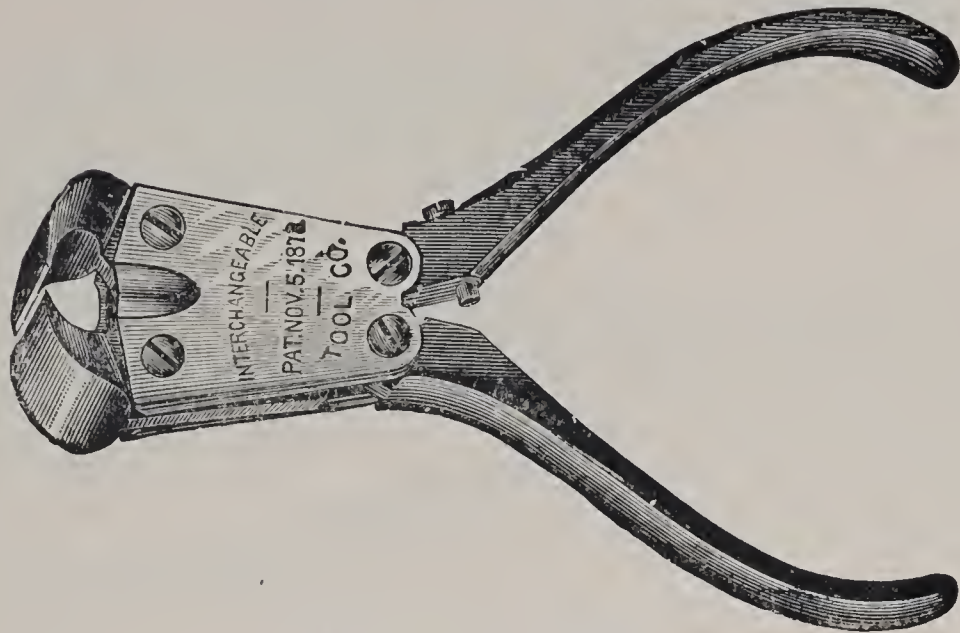
Trade Word.		Size.	Price.
Consultation.	4 inch.....	per doz.,	\$ 7.60
Consulted.	5 “ .....	“	8.40
Consulting.	6 “ .....	“	11.00

For Explanation of Trade Word see page 4.



TOOLS.

HALL'S NIPPERS.

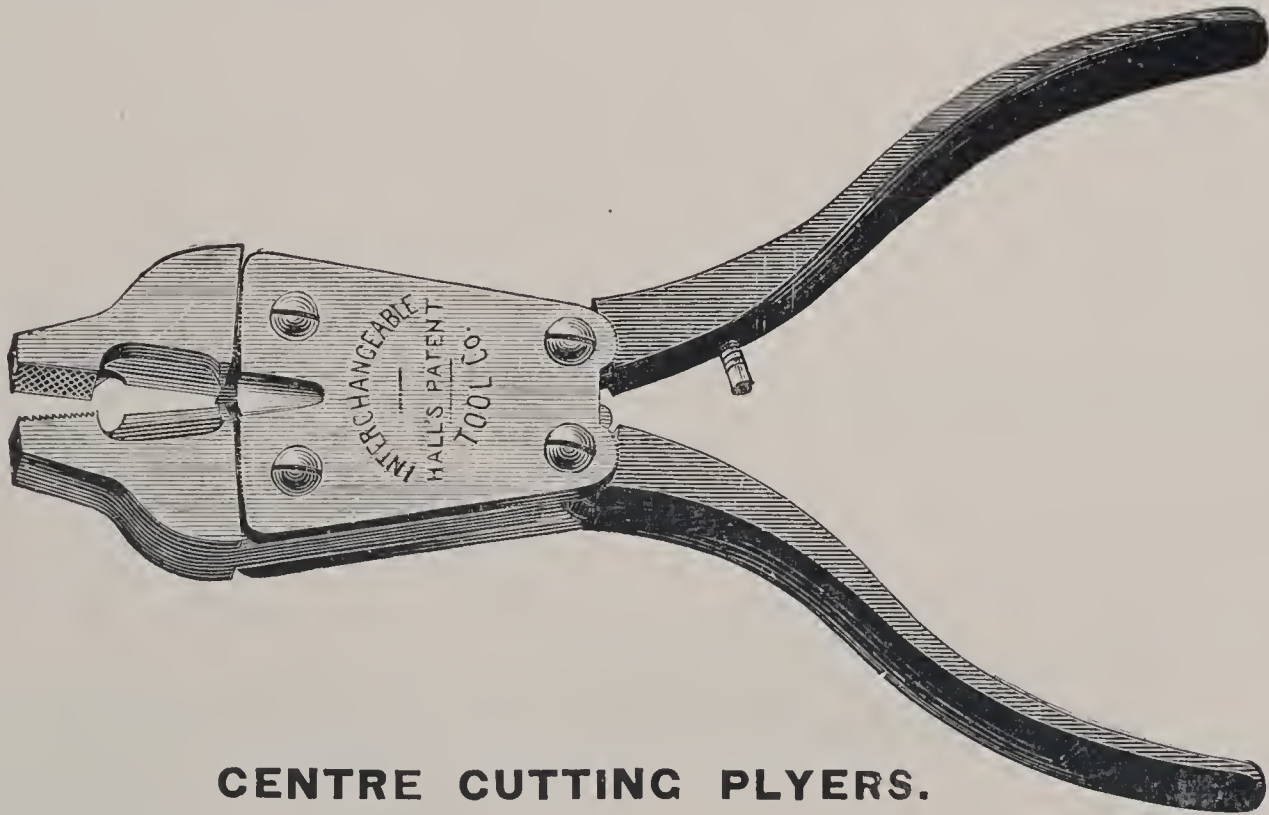


Trade Word.		REGULAR FINISH.			Price.
Consumable.	No. 1, Size, 4 inch Nippers.....	per doz.,	\$12.00		
Consume.	" 2, " 5 " ".....	"	13.50		
Consumed.	" 4, " 7 " ".....	"	21.00		
Consuming.	" 6, " 8 " ".....	"	30.00		
Consummate.	" 9, " 11 " " (new).....	"	38.00		

Trade Word.		NICKEL PLATED.			Price.
Consummation.	No. 1, Size, 4 inch Nippers.....	per doz.,	\$15.50		
Consumption.	" 2, " 5 " ".....	"	17.50		
Consumptive.	" 4, " 7 " ".....	"	21.00		
Contact.	" 6, " 8 " ".....	"	39.00		
Contagion.	" 9, " 11 " ".....	"	50.00		

Extra Screws, 80 cts. per doz., except Nos. 6 and 9, \$2.00. Extra Springs, all sizes, 80 cts. per doz.

Trade Word.		EXTRA JAWS.		Price.	Trade Word.		EXTRA SCREWS.		Price.
Contagious.	5 inch Nippers.....		\$0.30		Contamination.	5 inch Nippers.....		\$0.07	
Contain.	7 " ".....		.45		Contemn.	7 " ".....		.07	
Contained.	8 " ".....		.55		Contemned.	8 " ".....		.17	
Containing.	Extra Set Screws, all sizes.....							\$0.10	
Contaminate.	" Springs.....							.10	



Trade Word.		CENTRE CUTTING PLYERS.			Price.
Contemning.	No. 3, Size 6 inch Plyers, Regular Finish.....	per doz.,	\$17.50		
Contemplate.	" 5, " 8 " ".....	"	25.00		
Contemplating.	" 3, " 5 " " Nickel Plated.....	"	22.00		
Contemplation.	" 5, " 8 " " ".....	"	31.00		

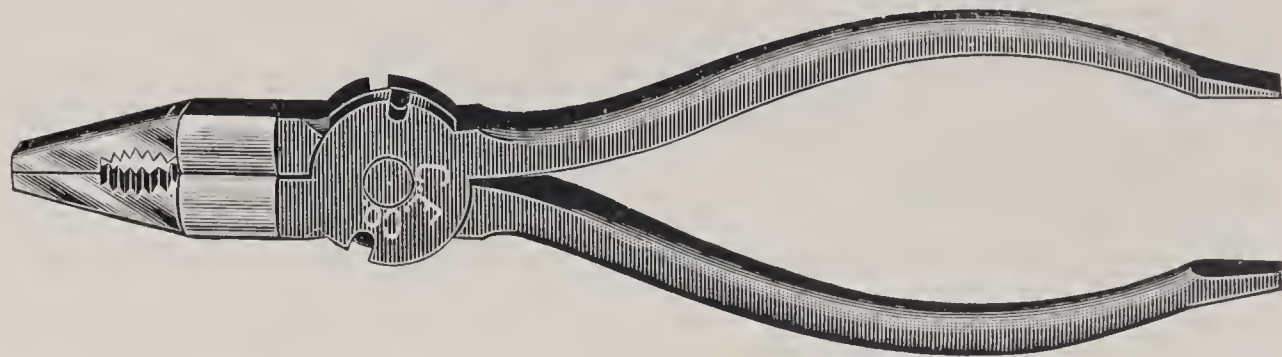
Trade Word.		JAWS.			Price.
Contemplator,	No. 3.....	per doz.,	\$5.00		
Contempt.	" 5.....	"	6.50		
Contemptible.	" 3, Nickel Plated.....	"	6.50		
Contemptibly.	" 5, " ".....	"	8.25		

Extra Handles, Screws and Springs same as Nos. 2 and 4 in Nipper List.

For Explanation of Trade Word see page 4.

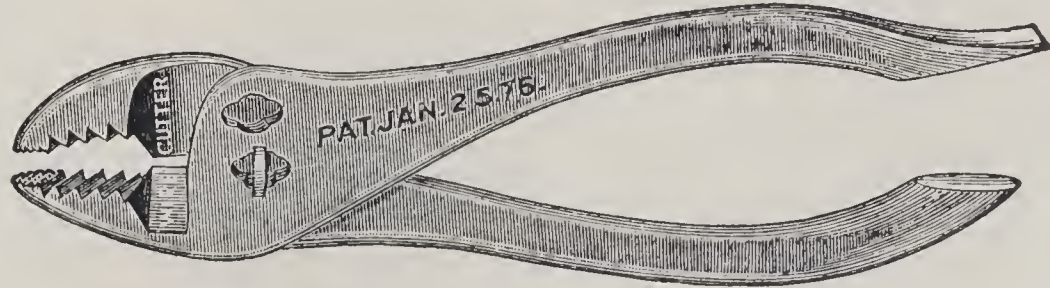


TOOLS.  
THE UNIVERSAL PLYERS.



This Combines Screw Driver, Cutting Plyers and Carbon or Pipe Plyers. Guaranteed all steel, and especially imported.  
Trade Word. Price.  
Contemptuous. Plain, length 8 inches .....each, \$1.50  
Contend. Nickel plated, length 8 inches..... “ 2.00

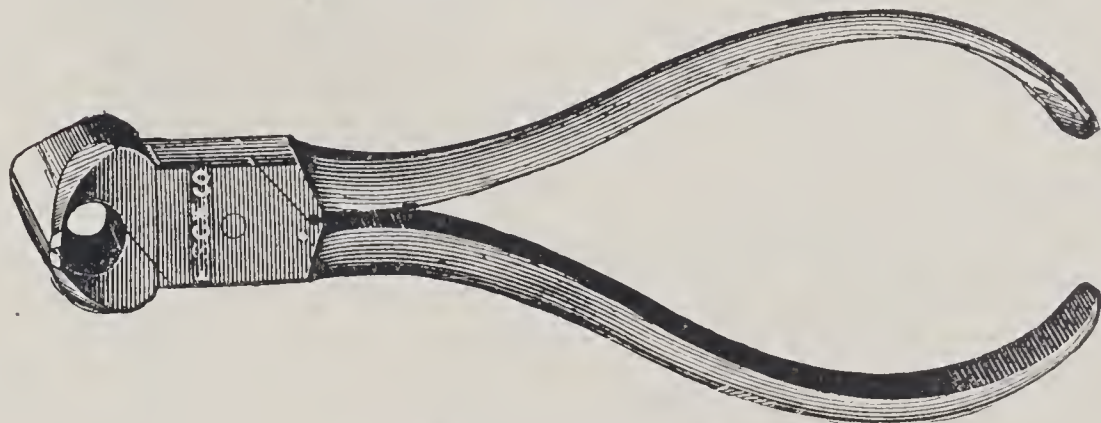
COMBINATION GAS PLYERS.



Pipe Plyers, Wire Cutters, Wrench and Screw Driver combined. Length 6½ inches. Drop forged from best tool steel, and is finished first-class in every respect.  
This tool admits of a wide range of adjustment. By a quarter turn of the handle and sliding from one hole to the other, which is done instantly, it changes from size of gas burner to ¾ inch pipe, or from ⅜ inch round to 1 inch round or square.

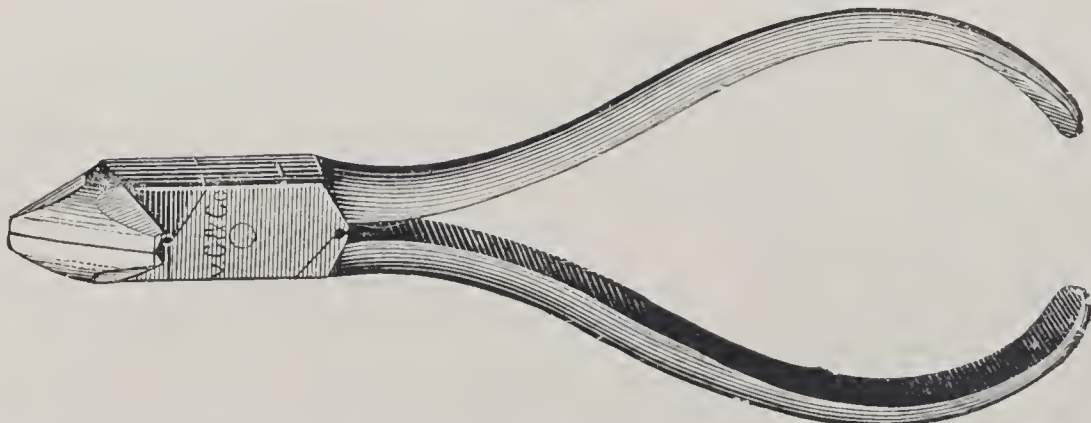
Trade Word. Price.  
Contender. Plain.....\$1.25  
Contending. Nickel plated..... 1.50

END CUTTING NIPPERS.



All steel, finely finished.  
Trade Word. Price. Trade Word. Price.  
Content. 5 in., plain.....each, \$1.00 Contentious. 6 in., plain.....each, \$1.25  
Contention. 5 “ nickel plated..... “ 1.25 Contentless. 6 “ nickel plated.... “ 1.50

CLOSE-CUTTING NIPPERS.



All Steel, finely finished. Knives placed at 45 degrees from handle, which permits Cutting flush with surface.  
Trade Word. Price. Trade Word. Price.  
Contentment. Size, 5 in., plain.....each, \$1.00 Conterminable. Size, 6 in., plain.....each, \$1.25  
Contents. “ 5 “ nickel plated, “ 1.25 Conterminous. “ 6 “ nickel plated, “ 1.50

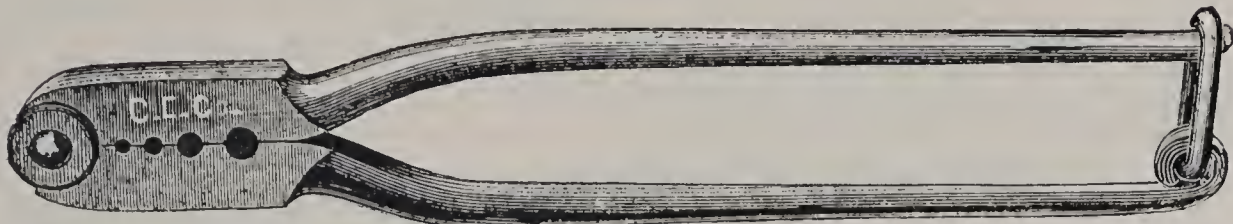
For Explanation of Trade Word see page 4.



TOOLS.

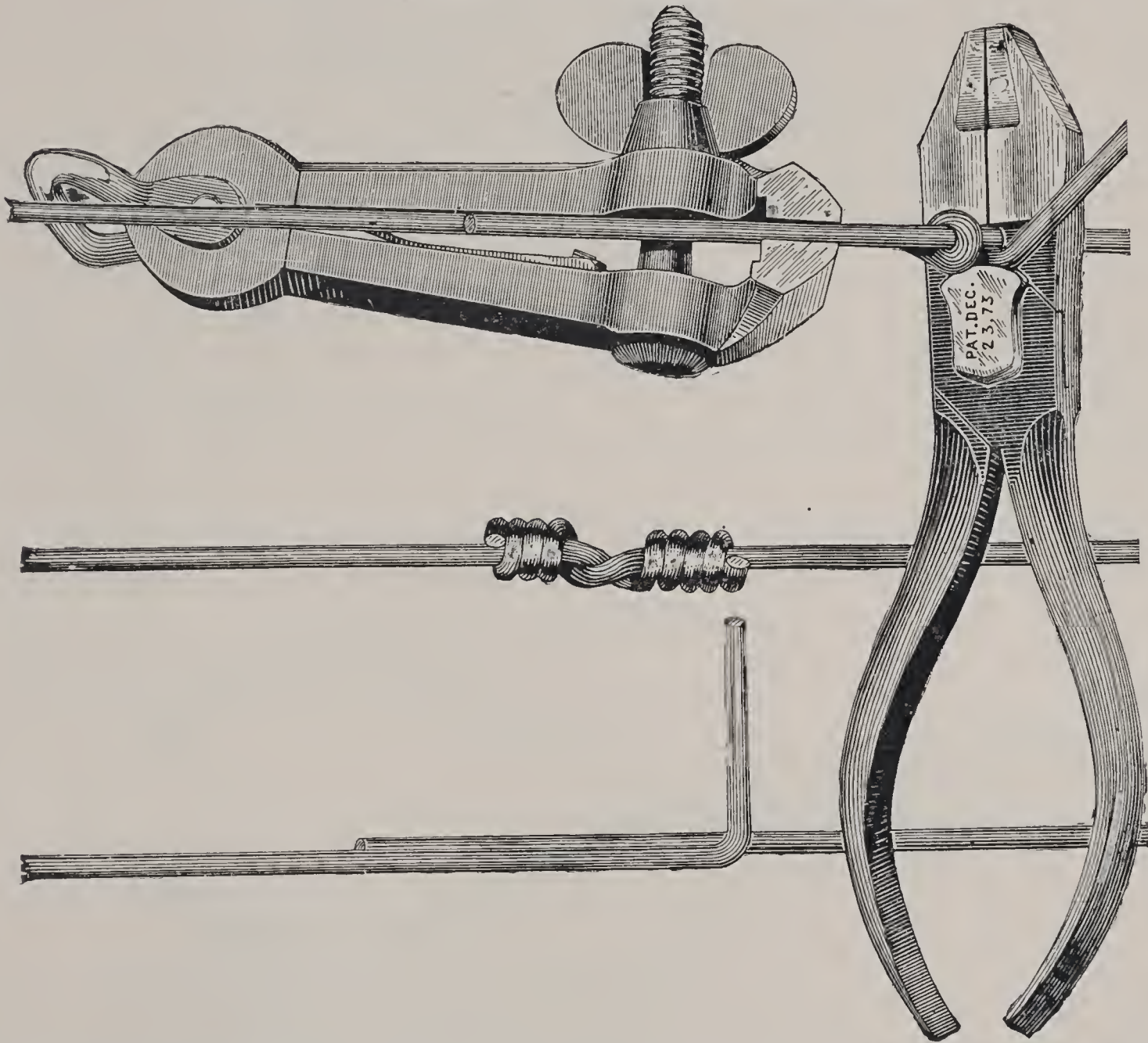
THE "C. E. CO." SPLICING CLAMP.

ALL STEEL.

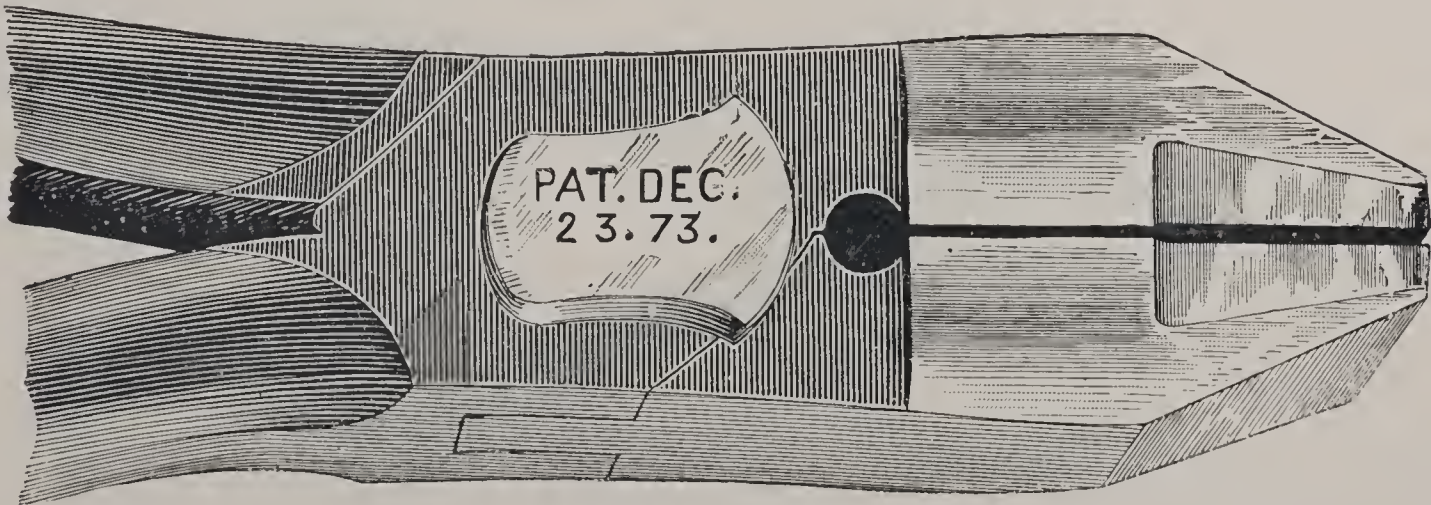


Trade Word.			Price.
Contest.	No. 1.	2 oblong holes, for No. 2 B. & S. wire and finer.....	\$2.00
Contesting.	" 2.	2 " " " " 6 and No. 8 B. & S. wires.....	2.00
Contestable.	" 3.	2 " and 2 round holes; holds from No. 10 to No. 4 B. & S. wires.....	2.25
Contested.	" 4.	4 round holes; holds from No. 10 to No. 6 wires.....	2.25

FRY'S PATENT SPLICING PLYERS.



This tool will splice or twist wires more easily and effectively than any pleyer at present in use. The wire, instead of being twisted by holding the end in the cutter of Pleyers, is turned by a steel "boss," or stud, attached to the rivet connecting the jaws.



Trade Word.	Side cutting, with hole, extra heavy cast steel, best quality, Stub's patent.	Price.
Context.	8 inch.....	each, \$2.00

For Explanation of Trade Word see page 4.

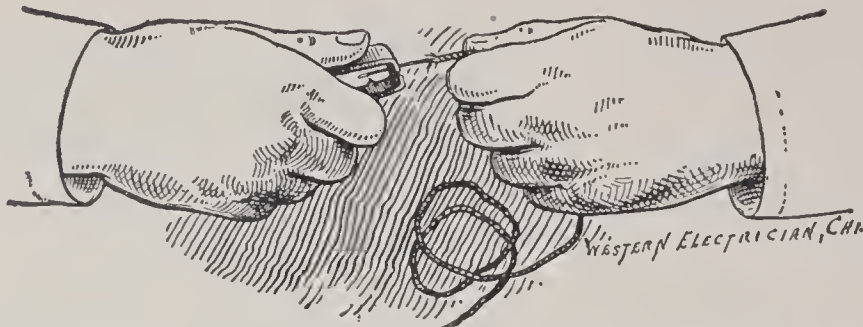
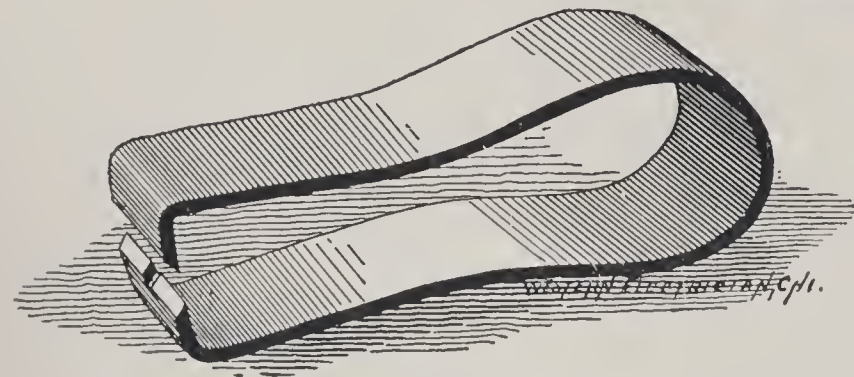


TOOLS.  
SPLICING TOOL.



Trade Word.  
Contiguity. To use with Clamp.....Price.  
\$0.60

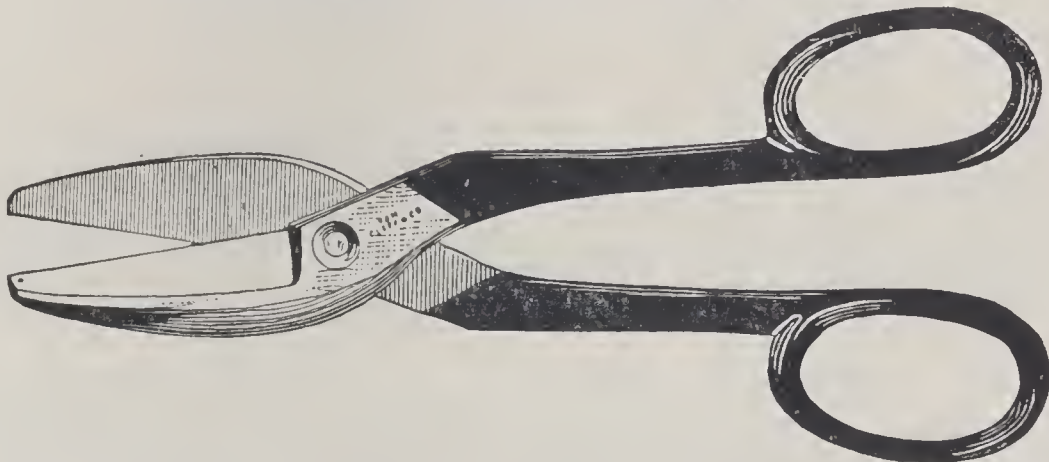
THE PERRY WIRE PEELER.



This handy little tool is just adapted to the use of incandescent wire men and bell-hangers who have many wire ends to peel. A man can cut the wire readily up to No. 12 in size with a very slight effort, and the peeler should become an invaluable aid where there is work enough to justify its use.

Trade Word.  
Contiguous.....each, Price.  
\$0.50

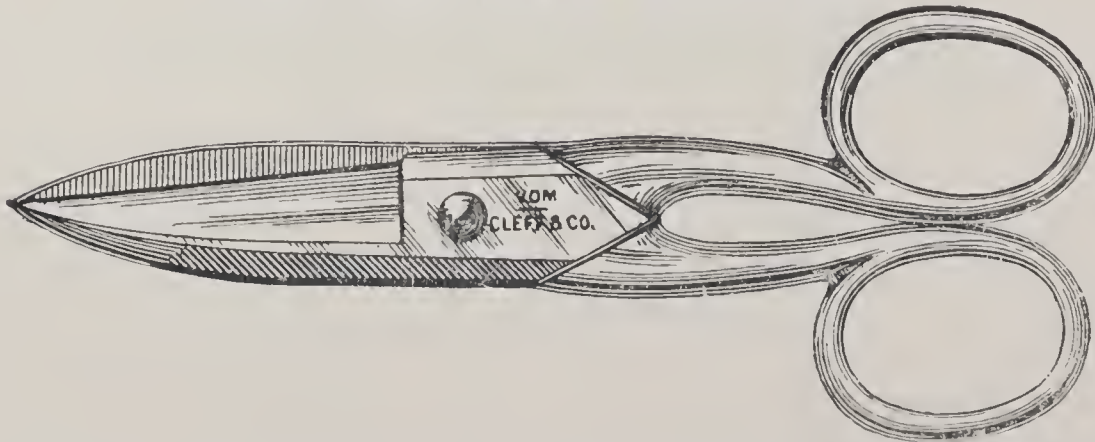
DYNAMO BRUSH SHEARS.



Made with either straight blades, as above illustrated, for straight cutting or curved blades for circular cutting.

STRAIGHT BLADES.				CURVED BLADES.			
Trade Word.	Length.	Cut.	Price.	Trade Word.	Length.	Cut.	Price.
Continenence.	10 in.	2 3/4 in.....	each, \$1.50	Continuable.	10 in.	2 3/4 in.....	each, \$1.50
Continent.	10 1/2 "	3 " .....	" 1.50	Continual.	10 1/2 "	3 " .....	" 1.50
Continental.	12 1/2 "	3 1/2 " .....	" 2.00	Continually.	12 1/2 "	3 1/2 " .....	" 2.00
Contingency.	14 "	4 " .....	" 2.50	Continuance.	14 "	4 " .....	" 2.50
Contingent.	16 "	4 1/2 " .....	" 3.00	Continuation.	16 "	4 1/2 " .....	" 3.00

ELECTRICIAN'S SCISSORS.



For Wire and Sheet Metal. Full length of Scissors, 5 1/4 inches; available length of blade, 1 7/8 inches. Superior manufacture, strong construction, highly polished, nickel plated. This handy implement was devised to meet the wants of Electricians and others for the manipulation of Fine Wires, thin sheet Insulations and Metals, Dynamo Commutator Brushes, for Stripping Wires and similar work.

Trade Word.  
Continuation.....each, Price.  
\$1.25

For Explanation of Trade Word see page 4.

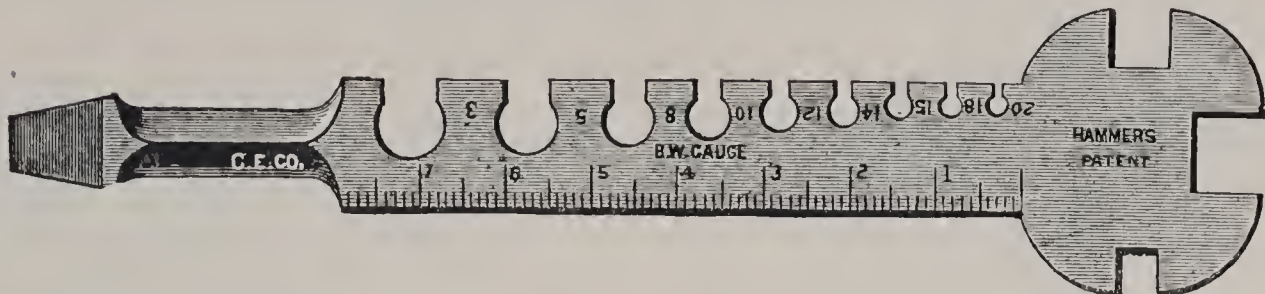


TOOLS.

ELECTRICIAN'S POCKET TOOL.

IN A NEAT CASE FOR THE VEST POCKET.

Wrench Sizes,  $\frac{3}{16}$ ,  $\frac{1}{4}$  and  $\frac{5}{16}$  of an inch respectively.



Comprises accurate Wire Gauge, the French Millimeter and English Inch Comparative Scales, Screw Driver, Wire Cleaner or Pencil Sharpener, and Standard Wrenches. Made in Brown & Sharpe's, Birmingham and Edison Gauges. Please state in ordering which gauge is wanted.

Trade Word.		Price.
Continue.	B. & S. Gauge.....	each, \$4.00
Continued.	Birmingham Gauge.....	“ 4.00
Continues.	Edison Gauge.....	“ 4.00

NOVELTY SCREW DRIVER.



POCKET SCREW DRIVER.

Closes up perfectly. The blade slides up into the handle, and when closed, the tool does not occupy more room than an ordinary pocket knife and does not wear out the pocket. The upper cut shows full size of the tool when closed.

Trade Word.		Price.
Continuedly .....	.....	each, \$0.50

NOVELTY BELL HANGER'S KNIFE.



LENGTH WHEN OPENED 5 1/2 INCHES.

It is operated entirely with one hand, is simple, safe and convenient, and is instantly opened or closed. A pull of the thumb, in the ordinary position in which the knife is held for use, upon the thumb piece, opens the blade slot, and drops out and securely locks the blade. The blade can also be set at various distances, for use as an eraser, pencil sharpener, nail cleaner, etc., etc., in which positions it is held by the pressure of the spring thumb catch. By reversing the movement of opening, the blade drops hack into the handle, and the blade slot is securely closed against entrance of dirt, etc., by the lip of the thumb catch, which closes over and covers it. The frame of the knife is made of extra hard bronze casting, the sides of ebony or cocoa wood, the blade of the finest English steel, and the whole is beautifully finished.

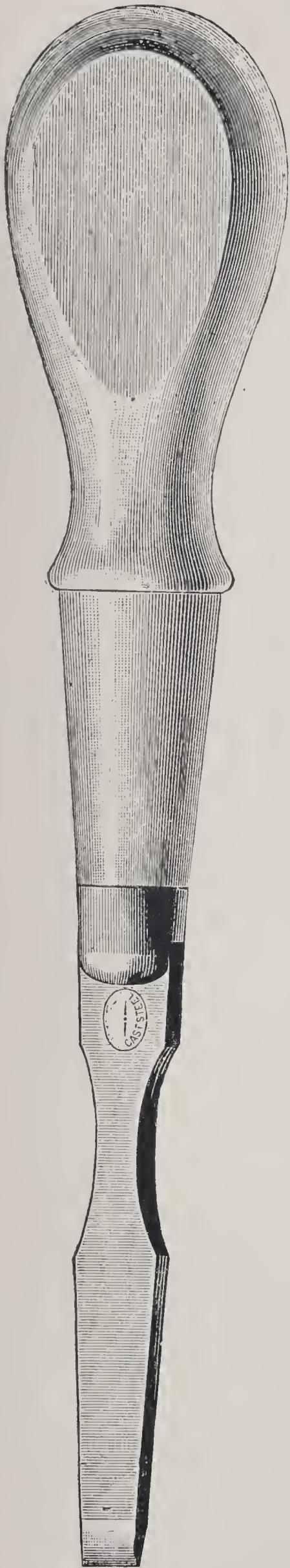
Trade Word.		Price.
Continuing .....	.....	each, \$0.50

For Explanation of Trade Word see page 4.



## TOOLS.

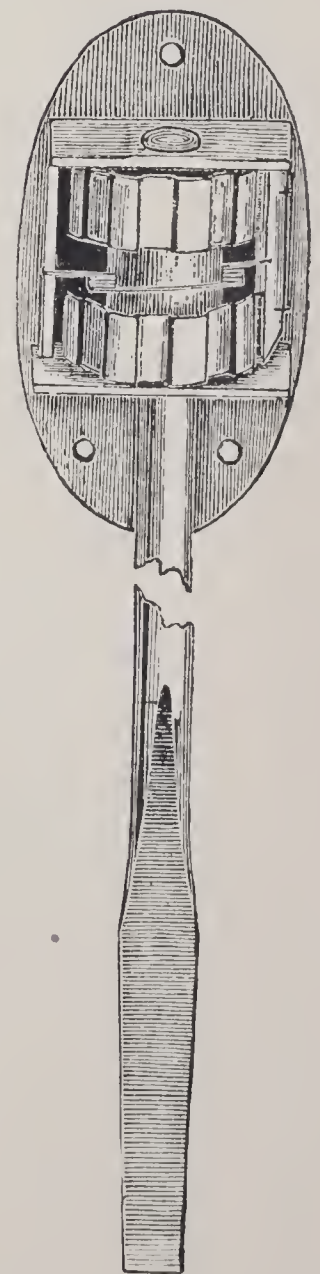
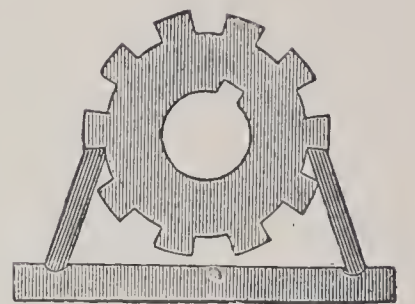
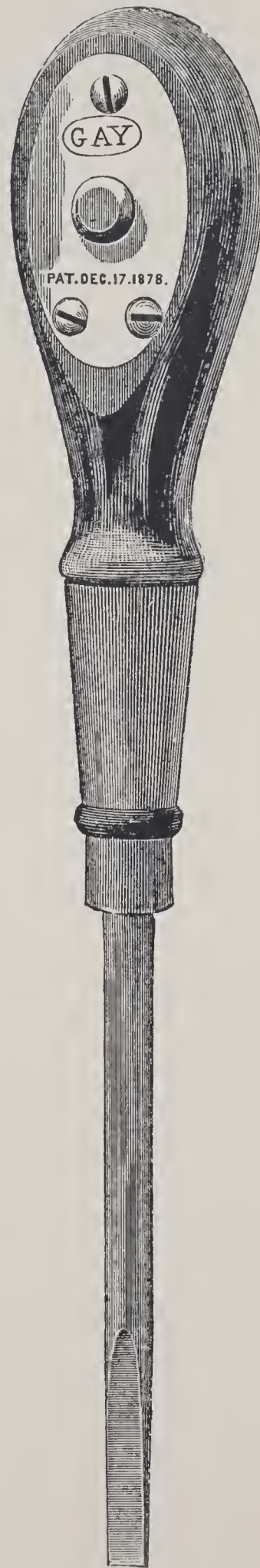
### SCREW DRIVERS.



Machinists'  
Extra Cast Steel.



Extra Cast Steel,  
Round Shank.



Gay's Ratchet.

For Prices, see next page.



TOOLS.

SCREW DRIVERS—Continued.

For Cuts See Preceding Page.

MACHINISTS' EXTRA CAST STEEL.

BRASS CAPPED FERRULES. BEECHWOOD HANDLES.

Trade Word.	Length.		Price.
Continuity.	2 inches	..... per doz.,	\$2.00
Continuous.	3 “	..... “	2.50
Contort.	4 “	..... “	3.00
Contorted.	5 “	..... “	3.50
Contortion.	6 “	..... “	4.00
Contour.	7 “	..... “	5.00
Contra.	8 “	..... “	5.50
Contraband.	10 “	..... “	8.50
Contract.	12 “	..... “	9.50

2 to 6 inch 1 dozen in a box. 7 to 12 inch ½ dozen in a box.

EXTRA CAST STEEL—ROUND SHANK.

NICKEL PLATED CAPPED FERRULES—EBONIZED HANDLES.

Trade Word.	Length.		Price.
Contracted.	2 inches	..... per doz.,	\$2.50
Contractile.	3 “	..... “	3.50
Contracting.	4 “	..... “	4.25
Contraction.	5 “	..... “	4.80
Contractor.	6 “	..... “	5.40
Contradict.	7 “	..... “	6.60
Contradicted.	8 “	..... “	7.20
Contradicting.	10 “	..... “	8.40
Contradiction	12 “	..... “	12.00

2 to 6 inch 1 dozen in a box. 7 to 12 inch ½ dozen in a box.

GAY'S DOUBLE ACTION RATCHET.

BRASS CAPPED FERRULES—BLACK HANDLES.

½ dozen in a box.

Trade Word.	Length.		Price.
Contralto.	4 inches	..... per doz.,	\$ 9.00
Contraries.	5 “	..... “	10.20
Contrariety.	6 “	..... “	12.00
Contrarily.	8 “	..... “	13.50
Contrary.	10 “	..... “	15.00
Contravene.	12 “	..... “	18.00

Sliding the button from one side of the plate to the other throws one pawl out and lets another into the teeth of the ratchet, changing from a right to a left hand action instantly, or, by leaving the button midway the blade remains stationary like a common screwdriver.

For Explanation of Trade Word see page 4.



TOOLS.

SCREW DRIVERS—Continued.

CLARK'S IMPROVED SCREW DRIVERS,

AND CASE CONTAINING HANDLE AND SET OF SCREW DRIVERS.



Handle 7 inches long, with patent holder for screw drivers, so arranged that blades can be put in or removed instantly.

Blades are made of Jessop's Cast Steel, with milled points and shanks, making them interchangeable. They will also fit an ordinary bit brace.

Each set consists of 4 blades of following dimensions:

$\frac{5}{16}$	of an inch	wide,	$4\frac{3}{4}$	inches	long.
$\frac{3}{8}$	"	"	5	"	"
$\frac{7}{16}$	"	"	$5\frac{1}{2}$	"	"
$\frac{5}{8}$	"	"	6	"	"

For heavy work, where large, strong screw drivers are required, this set is specially recommended.

Trade Word.		Price.
Contravening.	Maple Box.....per set,	\$1.25
Contravention.	Paper Box....."	1.00

THE CHAMPION SCREW DRIVERS.



Forged from the toughest steel. Are intended for and will stand hard work.

Trade Word.	Length.	Price.
Contretemps.	$2\frac{1}{2}$ inches.....per doz.,	\$3.00
Contributable.	3 "....."	3.50
Contribute.	4 "....."	4.25
Contributed.	6 "....."	6.00
Contributing.	8 "....."	8.00
Contribution.	10 "....."	10.00

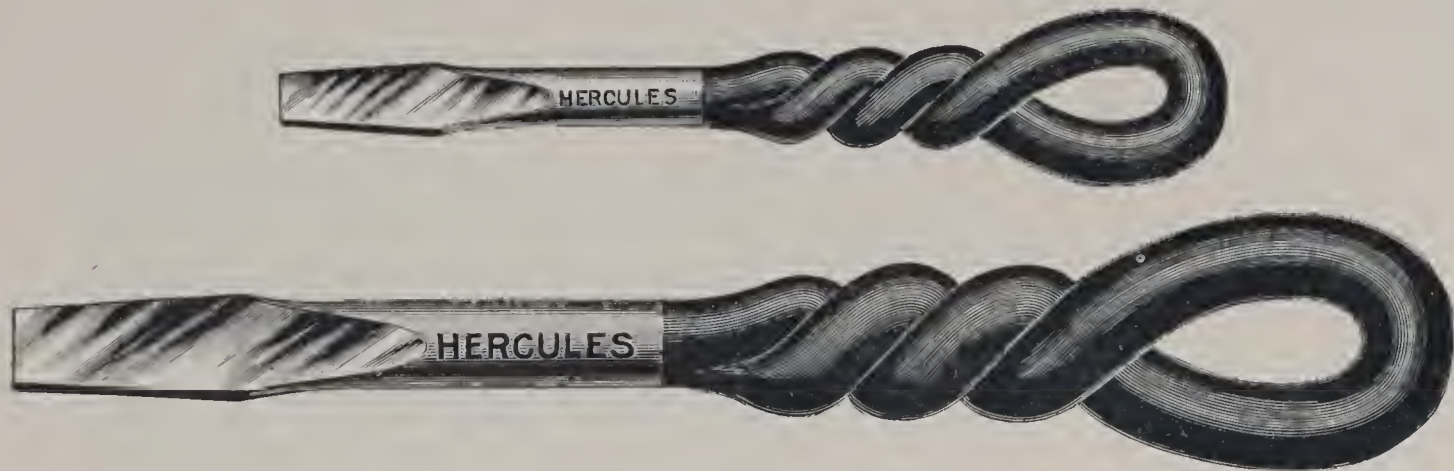
For Explanation of Trade Word see page 4.



CLARK'S.



TOOLS.  
THE HERCULES SCREW DRIVER.



PATENT PENDING.

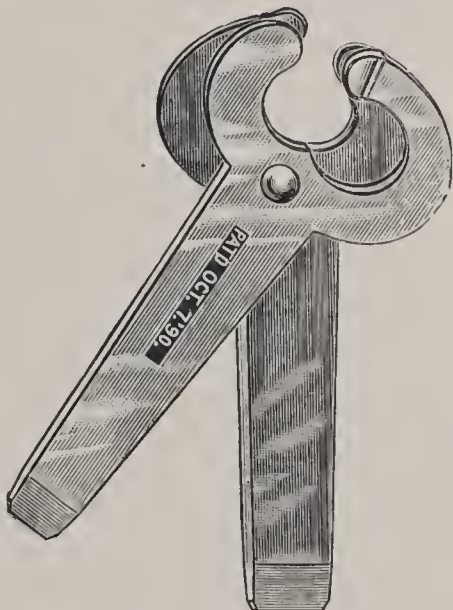
This Screw Driver is made from one piece of special cast steel, expressly made for this purpose. The blade is well polished, carefully tempered, and every Screw Driver subjected to a severe test, and warranted. All handles japanned with the best quality baking japan.

Trade Word.	Length of Blade.		Price.
Contributive.	2 inches	.....	each, \$0.20
Contributor.	3 "	.....	" .25
Contrite.	4 "	.....	" .30
Contribution.	5 "	.....	" .35
Contrivance.	6 "	.....	" .40
Contrive.	7 "	.....	" .45
Contrived.	8 "	.....	" .50

KEY - RING SCREW DRIVER.

CONVENIENT.

Made of tool steel, oil tempered. Instantly attached to or taken from Key-Ring by pressure of thumb and finger, the lock preventing detachment while in pocket.

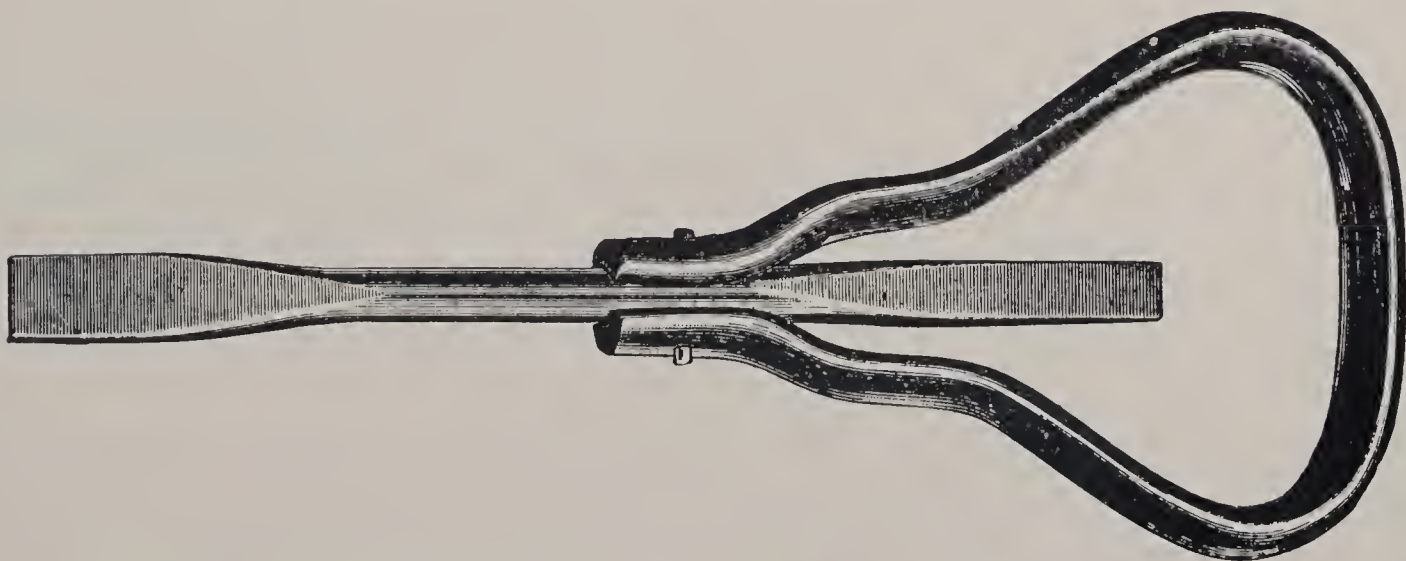


SERVICEABLE.

Trade Word.	Price.
Contriving. Plain finish...	each, \$0.35
Contriver. Nickel plated..	" .50

(CUT FULL SIZE.)

FOLDING SCREW DRIVERS.



DOUBLE FOLDING POCKET SCREW DRIVERS. (Two Drivers. See cut )

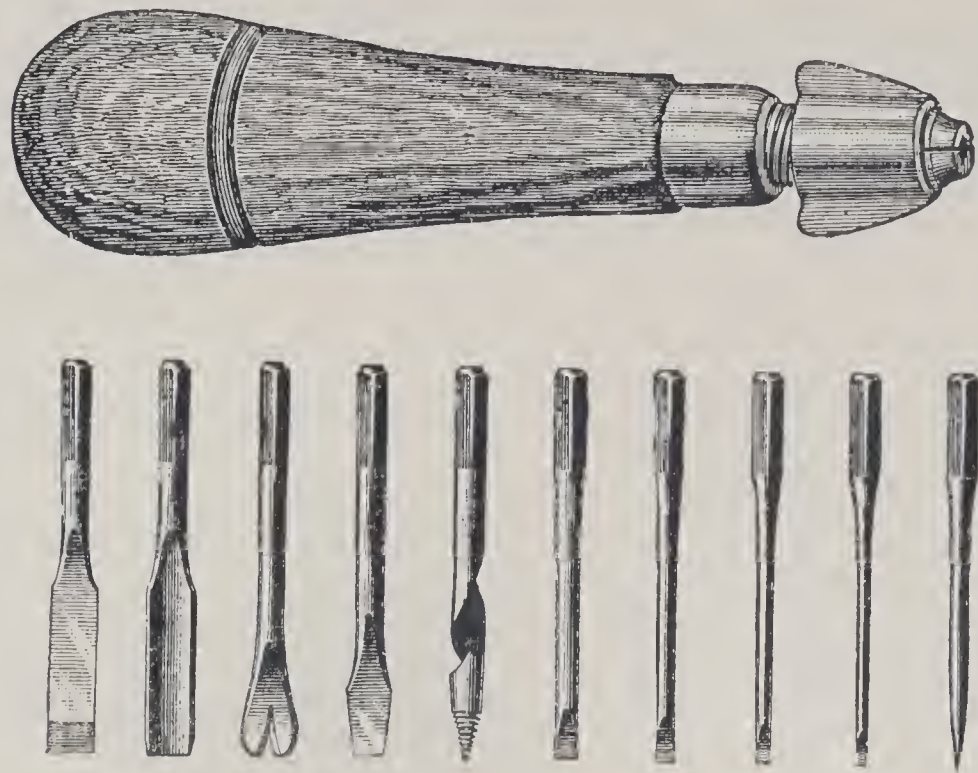
Trade Word.	Price.
Control.....	each, \$0.30

For Explanation of Trade Word see page 4.



TOOLS.

THE FRAY'S HOLLOW HANDLE TOOL SET No. 1.

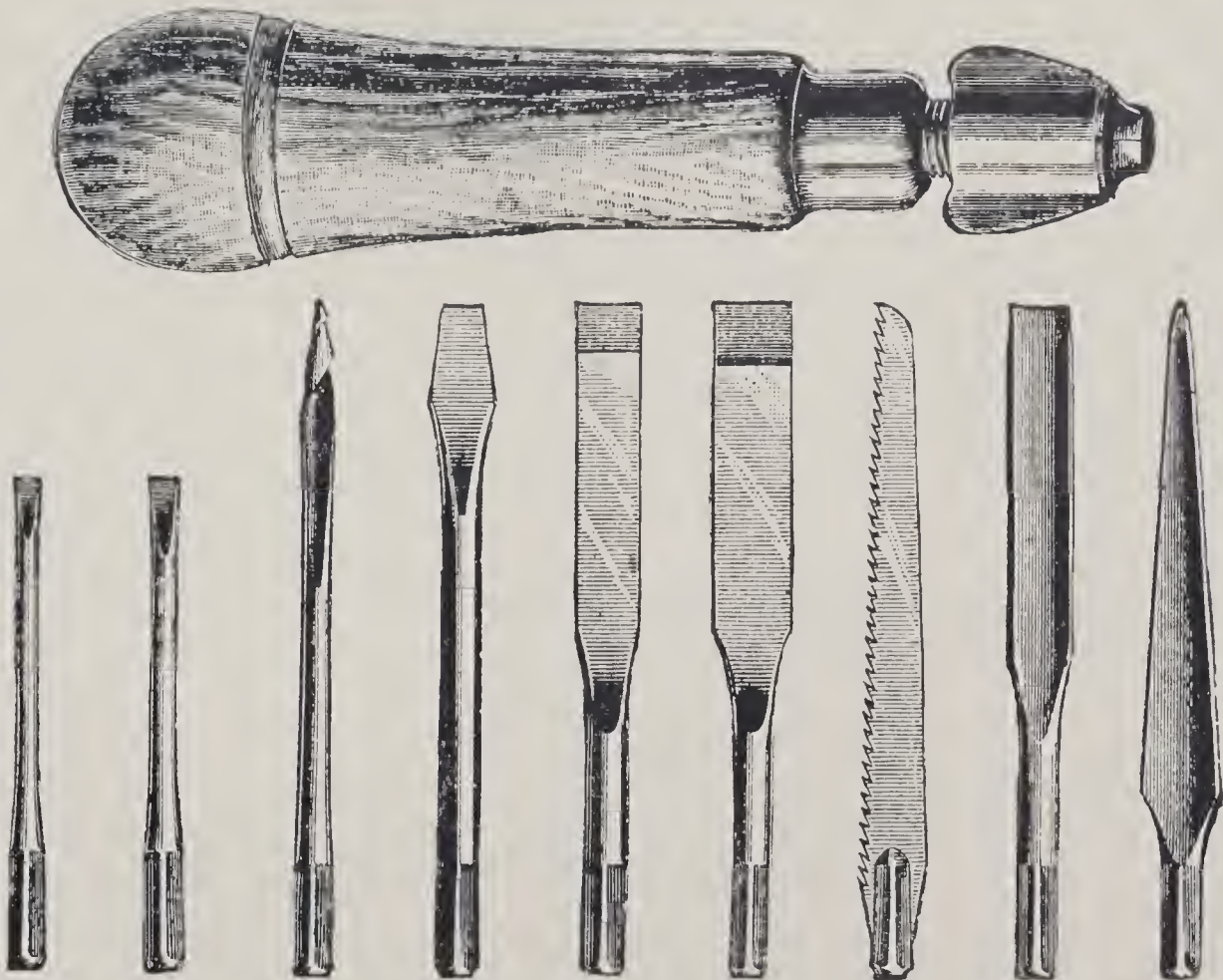


(CUT HALF SIZE.)

No. 1 Set consists of the Handle and following Tools: Gouge, Chisel, Gimlet, Tack Puller, Screw Driver, Scratch Awl and Four Brad Awls in assorted sizes.

Trade Word.		Price.
Controllable.	Complete .....	\$1.00

THE FRAY'S HOLLOW HANDLE TOOL SET No. 2.



(CUT HALF SIZE.)

No. 2 Set is the same in construction as No. 1, only larger and consists of the Handle and following Tools: 2 Chisels assorted, 2 Gouges assorted, 1 Screw Driver, 1 Taper Reamer, 1 Gimlet Bit, 1 Saw.

Trade Word.		Price.
Controller.	Complete .....	\$1.50

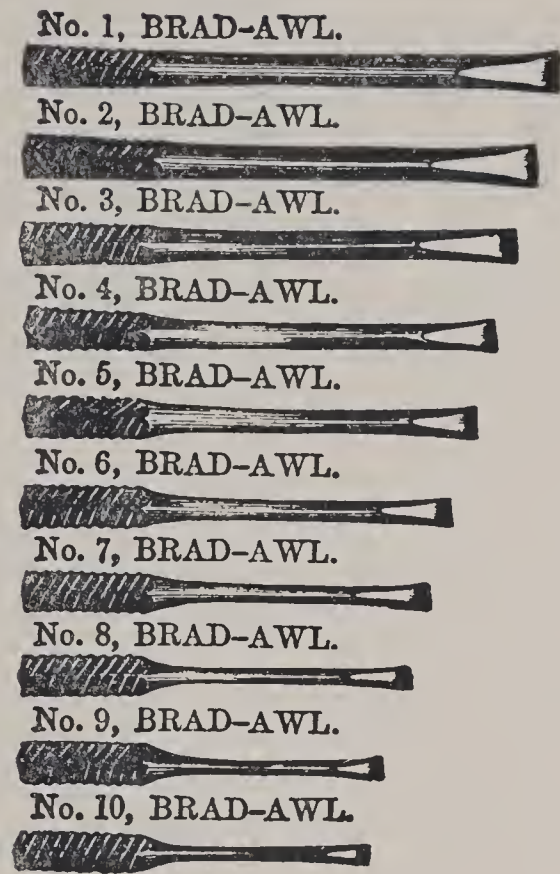
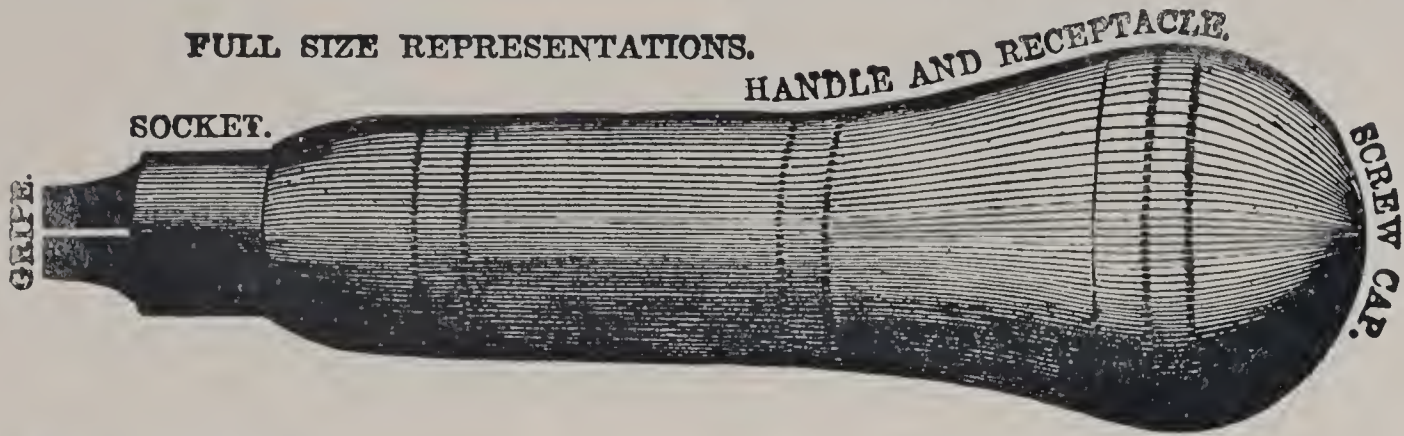
For Explanation of Trade Word see page 4.



TOOLS.

THE "MULTUM IN PARVO" POCKET TOOL HANDLE WITH TOOLS.

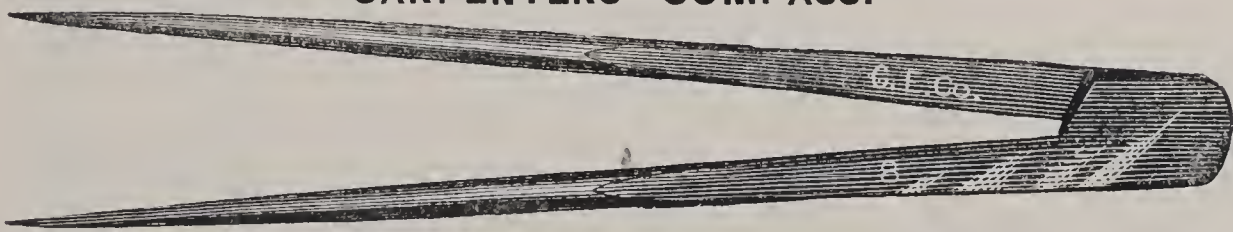
The handle is of finely finished wood, and is 4½ inches long, containing twenty tools, 1½ to 1¾ inches in length.



Trade Word.  
Controlling.  
Controversial.

The tools are all contained in the handle when not in use.		Price.
Price, complete, 20 tools, without gouge and saw.....		\$0 60
" " 20 " with gouge and saw.....		75

COMPASSES AND DIVIDERS.  
CARPENTERS' COMPASS.



Trade Word.  
Controversy.

6 inch Cast Steel.....	Price.
	each, \$0.50

WING DIVIDERS.



Trade Word.	Length.	Price.
Controvert.	5 inches.....	\$0.60
Controverted.	6 ".....	.60
Controvertible.	7 ".....	.75
Controverting.	8 ".....	.90
Contumacious.	9 ".....	1.00

For Explanation of Trade Word see page 4.



TOOLS.

CALIPERS.



INSIDE.

Trade Word.	Size.	Price.
Contumacy.	3 inches.....	each, \$0.50
Contumely.	4 “ .....	“ .60
Contuse.	5 “ .....	“ .75
Contused.	6 “ .....	“ .90

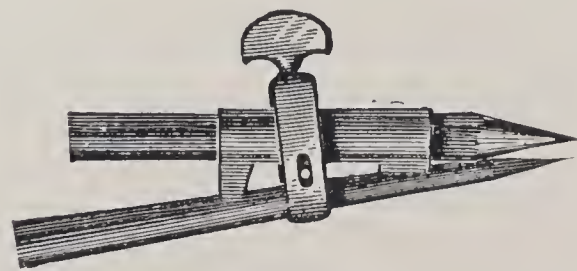
CALIPERS.



OUTSIDE.

Trade Word.	Size.	Price.
Contusion.	3 inches.....	each, \$0.50
Conundrum.	4 “ .....	“ .60
Convalescence.	5 “ .....	“ .75
Convalescent.	6 “ .....	“ .90

PENCIL HOLDER



FOR DIVIDERS AND COMPASSES.

Trade Word.	Price.
Convenable .....	each, \$0.50

For Explanation of Trade Word see page 4.



TOOLS.

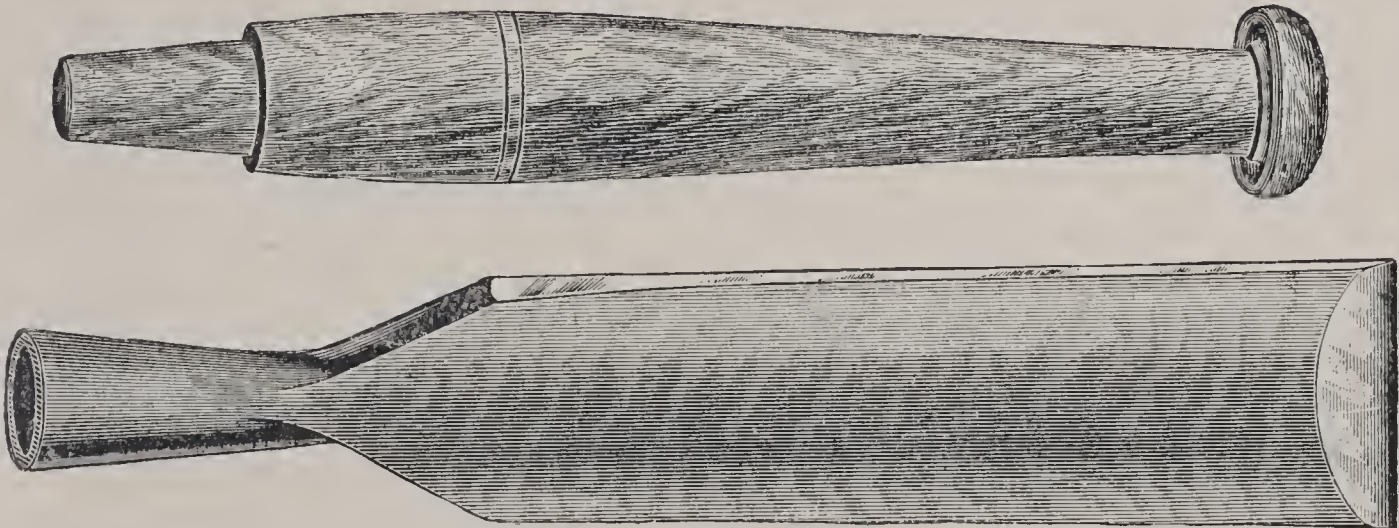
CHISELS—Socket Framing.



8-INCH BLADES.

Trade Word.	Width.		Price.
Convene.	$\frac{1}{4}$ inch	.....each,	\$0.75
Convened.	$\frac{1}{2}$ “	.....“	1.25
Convener.	$\frac{3}{4}$ “	.....“	1.50
Convenience.	1 “	.....“	1.75
Convenient.	$1\frac{1}{4}$ “	.....“	2.00
Convening.	$1\frac{1}{2}$ “	.....“	2.25
Convent.	2 “	.....“	2.50

SOCKET SLICKS.



Trade Word.	Width.		Price.
Conventicle.	$2\frac{1}{4}$ inches	.....each,	\$4.00
Convention.	3 “	.....“	4.50
Conventional.	$3\frac{1}{2}$ “	.....“	5.00
Conventionally.	4 “	.....“	5.50

COLD CHISELS.



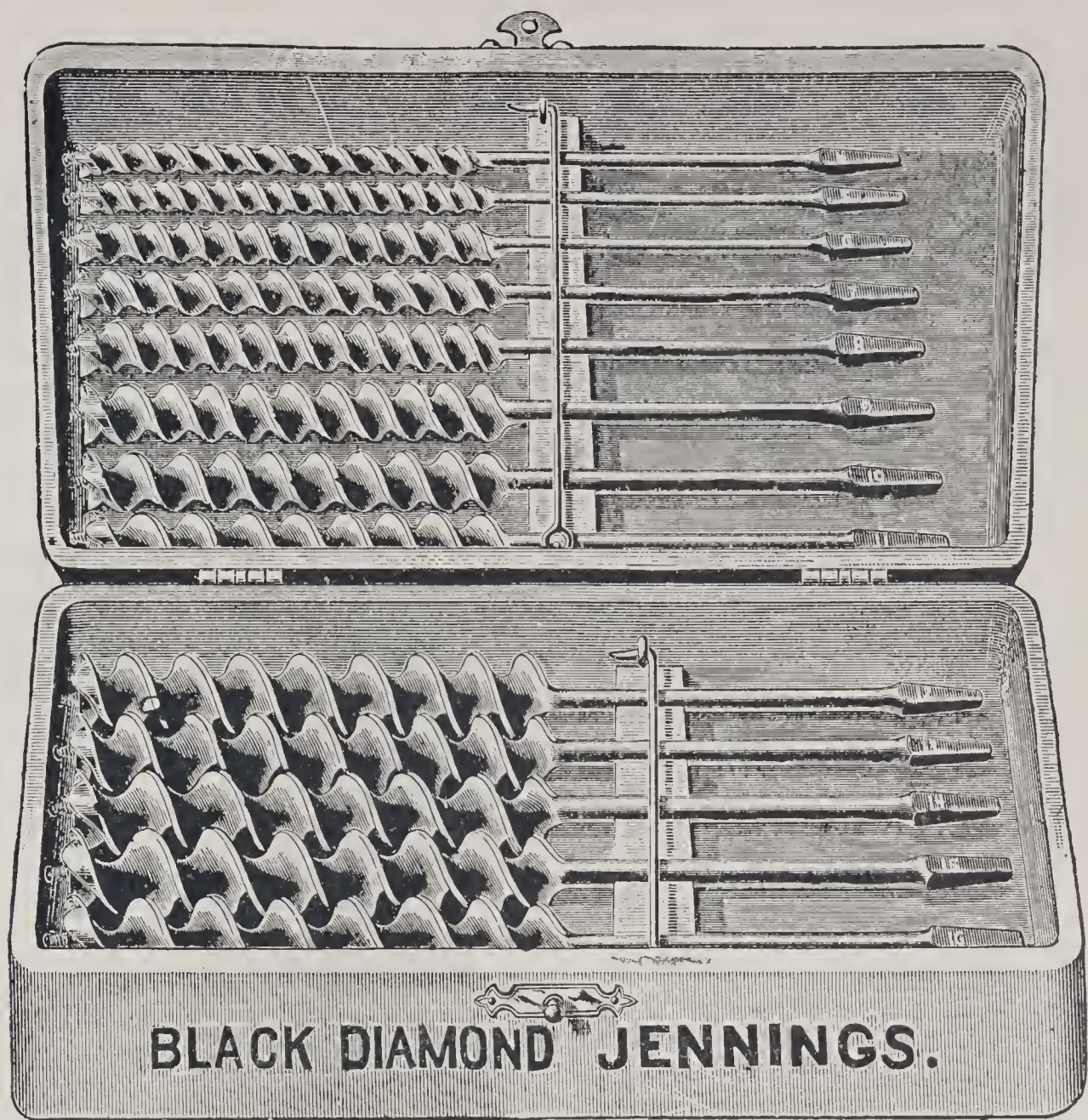
SOLID CAST STEEL, OCTAGON.

Trade Word.	Size.		Price.
Converge.	$\frac{3}{8}$ inch	.....each,	\$0.25
Converging.	$\frac{1}{2}$ “	.....“	.35
Conversable.	$\frac{5}{8}$ “	.....“	.60
Conversant.	$\frac{3}{4}$ “	.....“	.70
Conversation.	$\frac{7}{8}$ “	.....“	1.00
Converse.	1 “	.....“	1.25

For Explanation of Trade Word see page 4.



TOOLS.  
AUCER BITS.



Set of 32½ quarters Black Diamond Jennings' Pattern, extra cast steel Bits, in fancy varnished hard-wood boxes, assorted, 1 each, 4 to 16 sixteenths.

Trade Word.	Price.
Conversely.	\$7.50

BLACK DIAMOND.



JENNINGS' PATENT, EXTRA CAST STEEL.

Trade Word.	Sizes in Sixteenths.	Price.
Conversion.	4.....	per doz. \$3.00
Conversive.	5.....	“ 3.40
Convert.	6.....	“ 3.80
Converted.	7.....	“ 4.40
Converting.	8.....	“ 4.80
Convex.	9.....	“ 5.20
Convexly.	10.....	“ 5.60
Convey.	12.....	“ 6.60
Conveyance.	16.....	“ 9.00

AUCERS.

For boring pin holes in cross arms.

Trade Word.	Size.	Price.
Conveyed.	1¼ inch.....	each, \$1.00
Conveying.	1½ “.....	“ 1.25

For Explanation of Trade Word see page 4.



TOOLS.

EXPANSION BITS.

CLARK'S PATENT.



$\frac{1}{2}$  to  $1\frac{1}{2}$  inches.

Trade Word.

Convict.....each, 

Price.  
\$2.00



$\frac{7}{8}$  to 3 inches.

Trade Word.

Convicted.....each, 

Price.  
\$3.00

ADJUSTABLE MALLEABLE IRON DRILL HANDLES.



Trade Word.

Convicting.....each, 

Price.  
\$0.25

BELL HANGERS' AND ELECTRICIANS' DRILLS.



Style E.

The numbers indicate the sizes in 32ds of an inch.

No.	12 Inch. Per Dozen.	18 Inch. Per Dozen.	No.	24 Inch. Per Dozen.	30 Inch. Per Dozen.	No.	36 Inch Per Dozen.
6	\$ 5.00	\$ 7.00	6	\$ 9.00	\$11.00	6	\$13.00
8	5.00	7.00	8	9.00	11.00	8	13.00
10	5.50	7.50	10	9.50	12.00	10	13.00
12	6.00	8.00	12	10.00	12.00	12	13.00
14	7.00	9.00	14	11.00	13.00	14	14.00
16	8.00	10.00	16	12.00	14.00	16	15.00
18	9.00	11.00	18	13.00	15.00	18	16.00
20	10.00	12.00	20	14.00	15.00	20	16.00
22	11.00	13.00	22	15.00	16.00	22	17.00
24	12.00	14.00	24	16.00	17.00	24	18.00
26	13.00	15.00	26	17.00	18.00	26	18.00
28	14.00	16.00	28	18.00	19.00	28	19.00
30	15.00	17.00	30	19.00	20.00	30	20.00
32	16.00	18.00	32	20.00	20.00	32	20.00
34	17.00	19.00	34	20.00	20.00	34	20.00

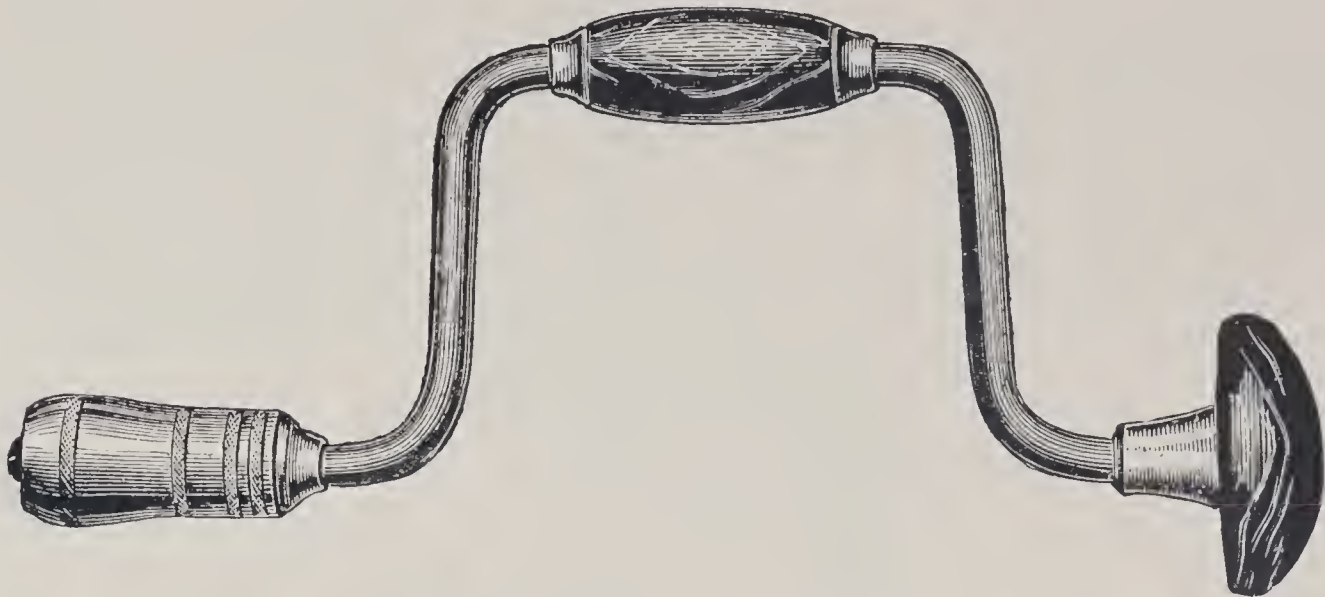
Use numbers and lengths in ordering these drills.

For Explanation of Trade Word see page 4.



TOOLS.

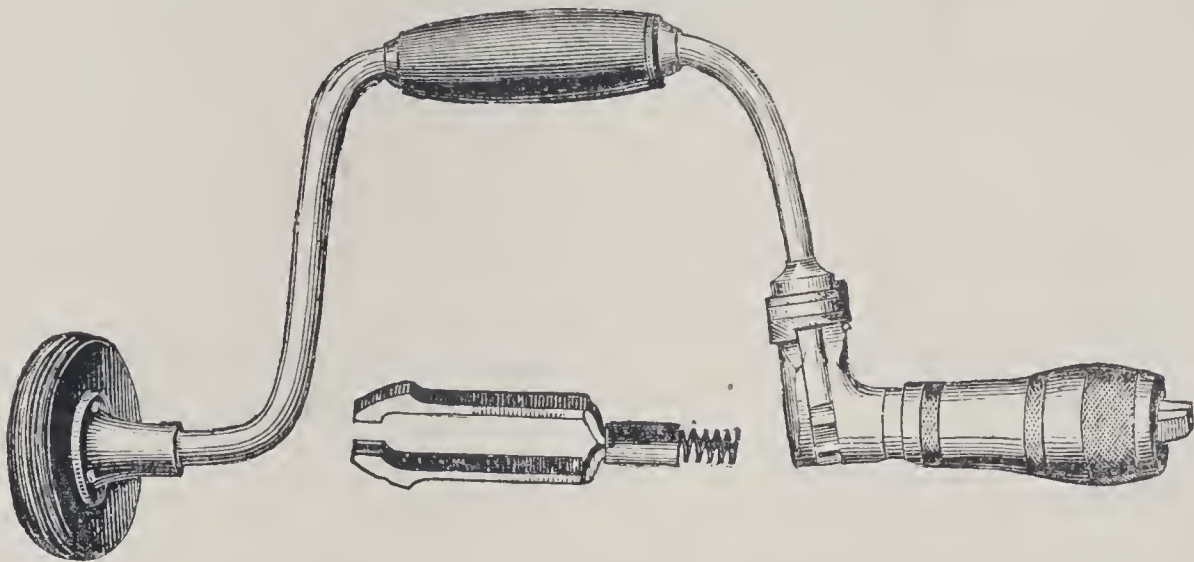
BUFFALO BRACE.



Walnut Head and Handle.

Trade Word.			Price.
Convince.	8-inch sweep	.....	\$1.00

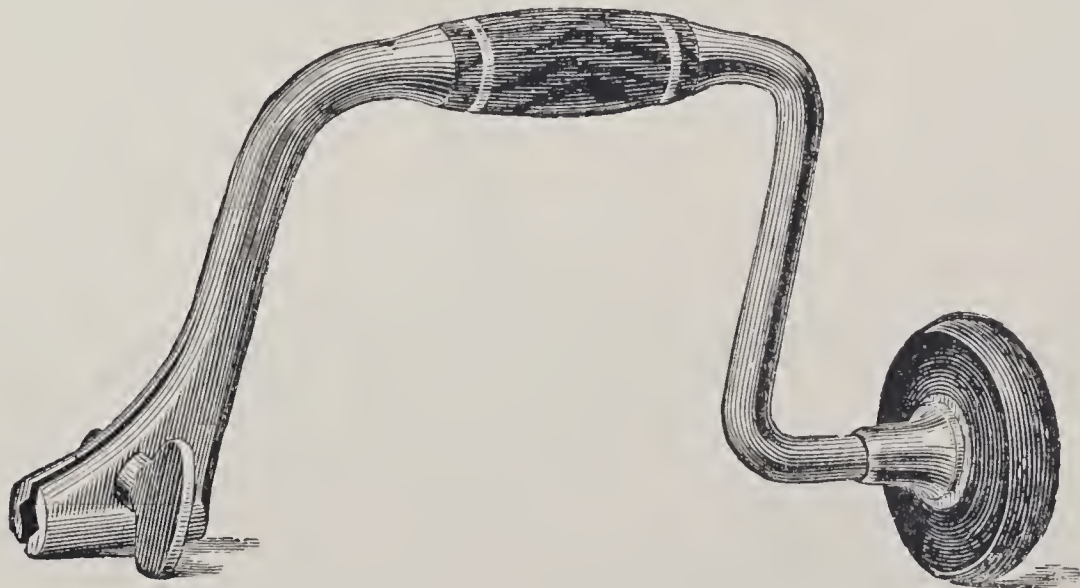
BARBER'S IMPROVED RATCHET BRACE.



Steel Sweep, Nickel Plated, Lignum-vitæ Head and Rosewood Handle.  
Forged Steel Jaws, with Dolan's Patent Ratchet.

Trade Word.			Price.
Convinced.	8-inch sweep	.....	\$3.00
Convincing.	10-inch " "	.....	3.50

SPOFFORD'S IMPROVED.



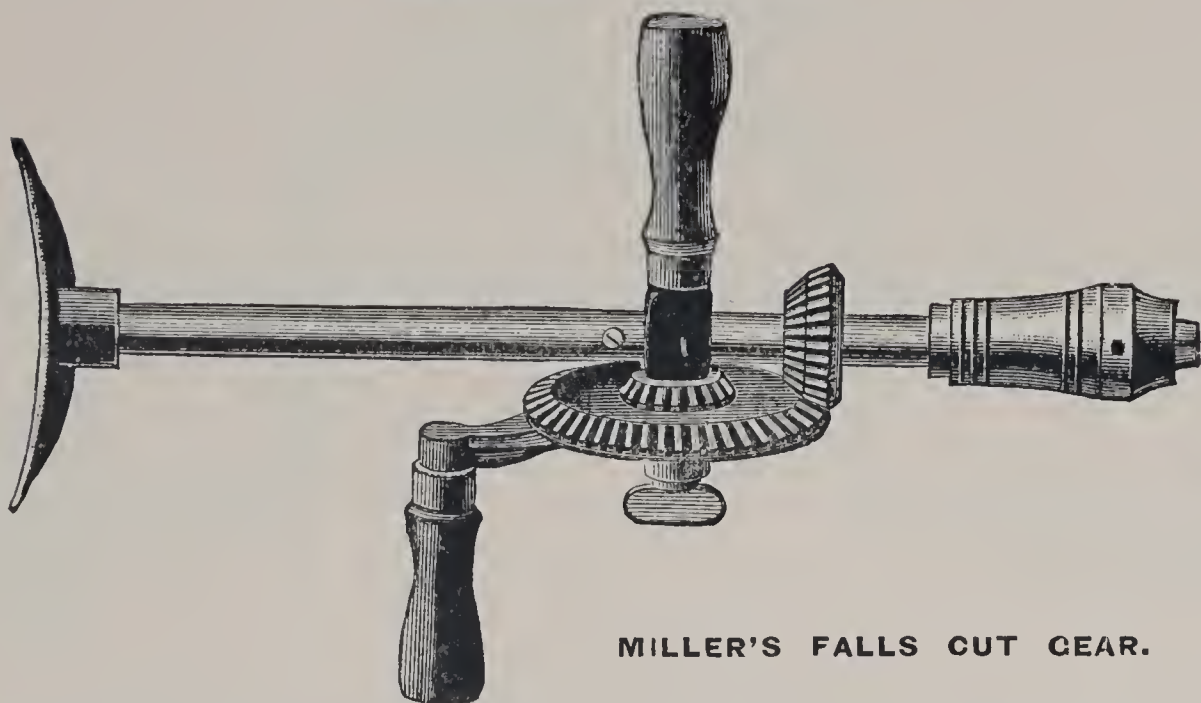
Nickel Plated, Cocobolo wood Head and Handle.

Trade Word.			Price.
Convivial.	7-inch sweep	.....	\$2.00
Convocate.	8 " "	.....	2.50
Convocation.	10 " "	.....	3.00

For Explanation of Trade Word see page 4.



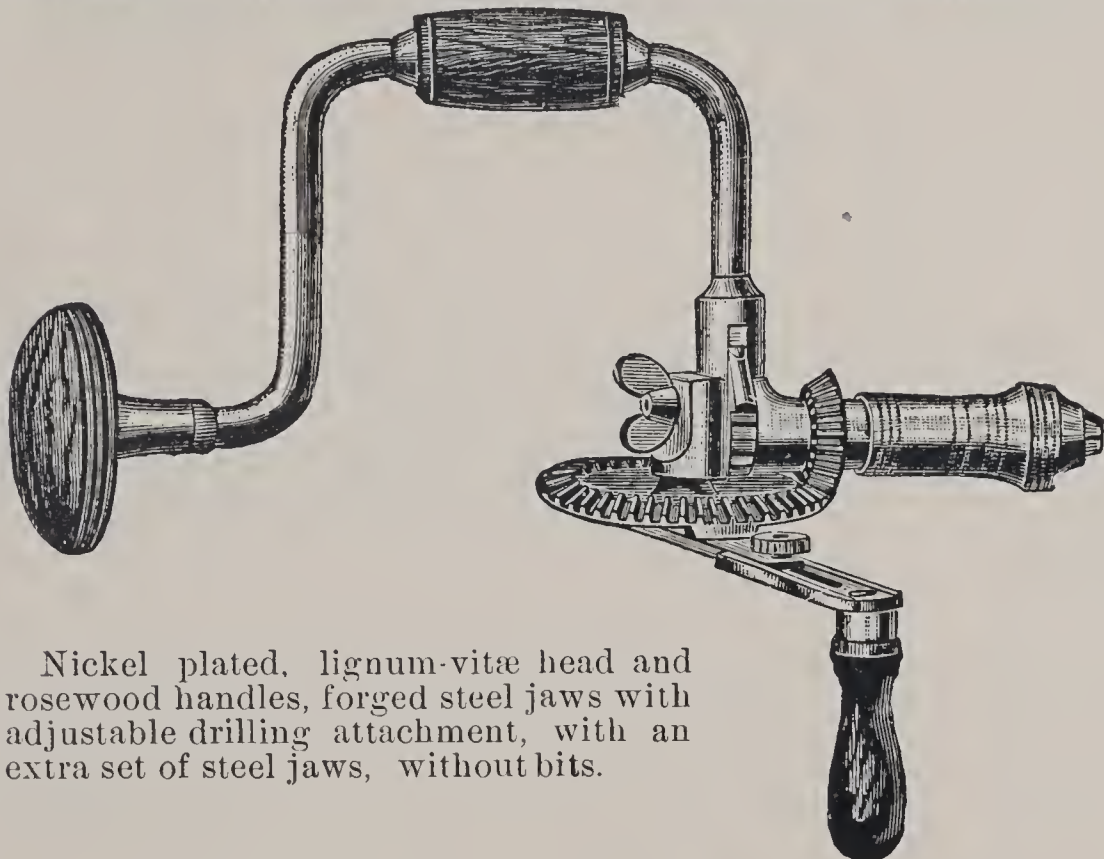
TOOLS.  
BREAST DRILLS.



MILLER'S FALLS CUT GEAR.

Trade Word.	Malleable iron, rosewood handle, nickel plated chuck, without bits.	Price.
Convoke.	.....	.....\$4.00

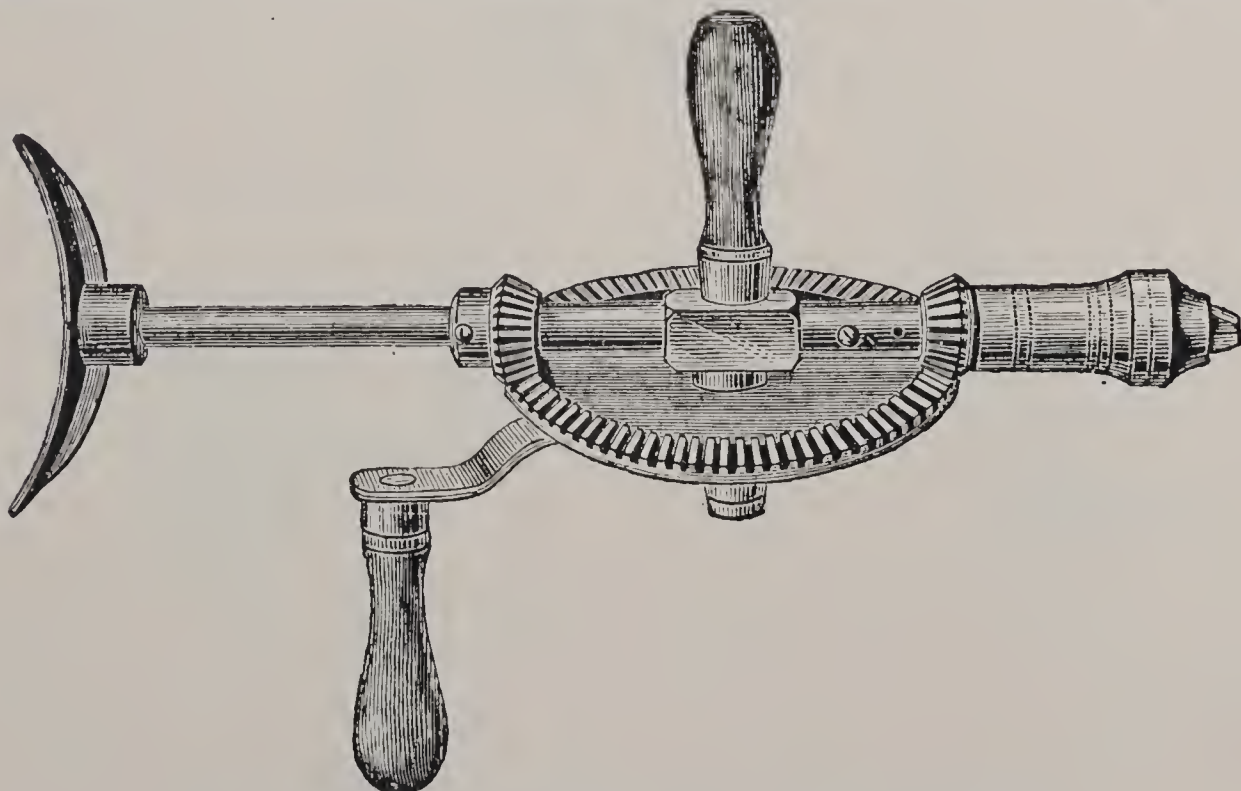
MILLER'S FALLS RATCHET DRILL BRACE.



Nickel plated, lignum-vitæ head and rosewood handles, forged steel jaws with adjustable drilling attachment, with an extra set of steel jaws, without bits.

Trade Word.	.....	Price.
Convoking.	.....	.....\$4.00

MILLER'S FALLS DOUBLE GEARED, CUT GEARS.

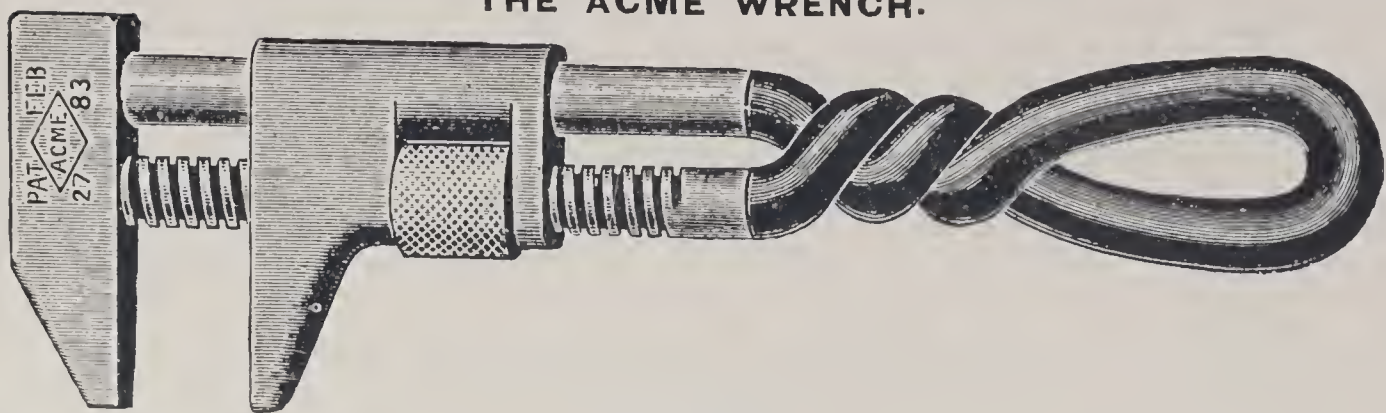


Trade Word.	6 inch driving wheel, nickel plated, rosewood handles.	Price.
Convolute.	.....	.....\$5.00

For Explanation of Trade Word see page 4.

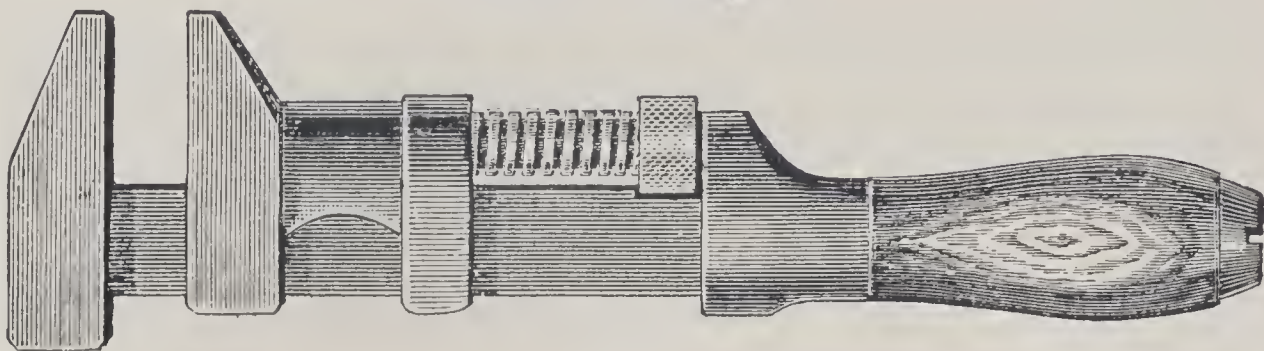


TOOLS.  
WRENCHES.  
THE ACME WRENCH.



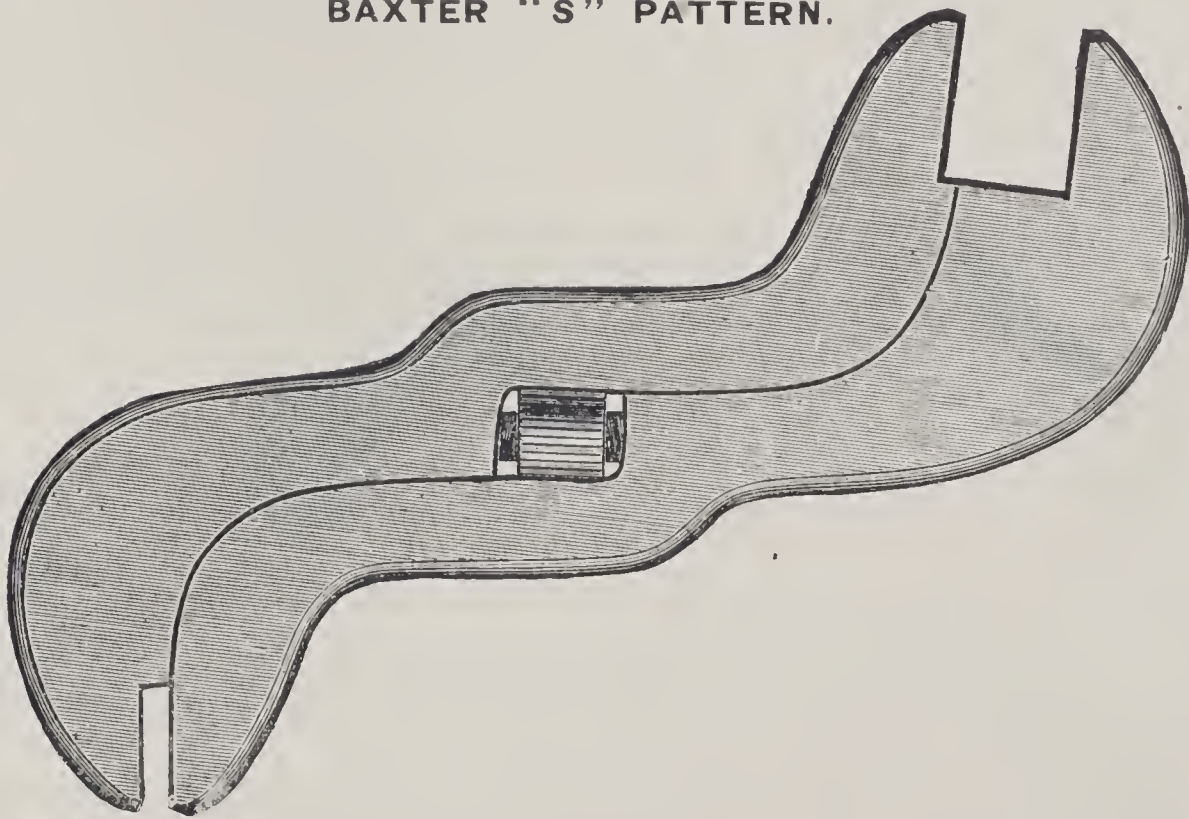
POLISHED.							
Trade Word.			Price.	Trade Word.			Price.
Convoy.	6 inches	.....per doz.,	\$ 9.00	Cook.	15 inches	.....per doz.,	\$24.00
Convulse.	8 "	....."	10.00	Cooked.	18 "	....."	3 .00
Convulsion.	10 "	....."	12.00	Cookery.	21 "	....."	36.00
Convulsive.	12 "	....."	14.00				

SCREW WRENCH.



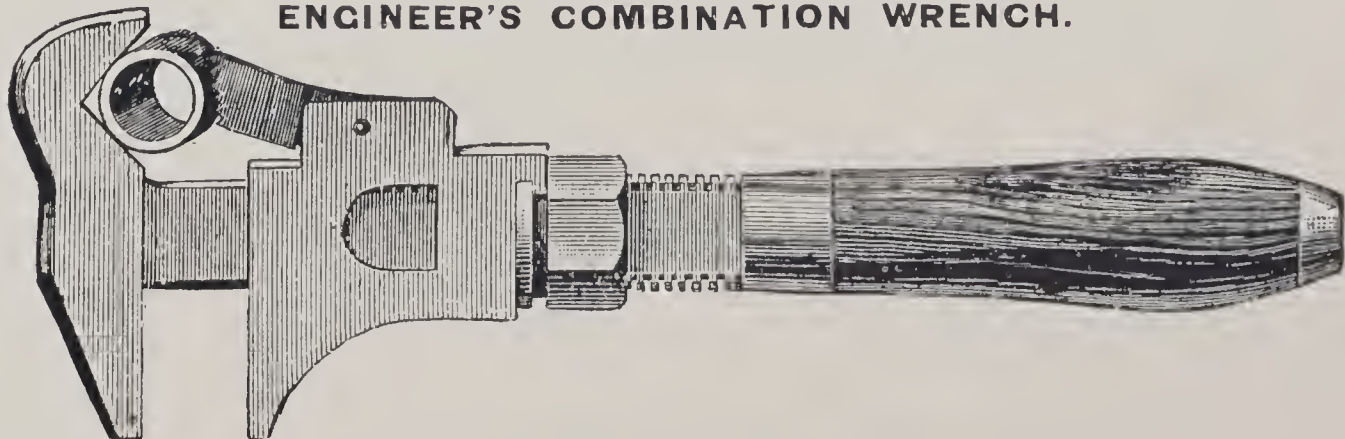
BLACK.							
Trade Word.			Price.	Trade Word.			Price.
Cool.	6 inches	.....per doz.,	\$ 9.00	Cooler.	12 inches	.....per doz.,	\$15.00
Cooled.	8 "	....."	10.00	Coolish.	15 "	....."	24.00
Cooling.	10 "	....."	12.00				

BAXTER "S" PATTERN.



Trade Word.			Price.
Coolness.	6 inches	.....per doz.,	\$ 9.00
Coop.	8 "	....."	12.00

ENGINEER'S COMBINATION WRENCH.



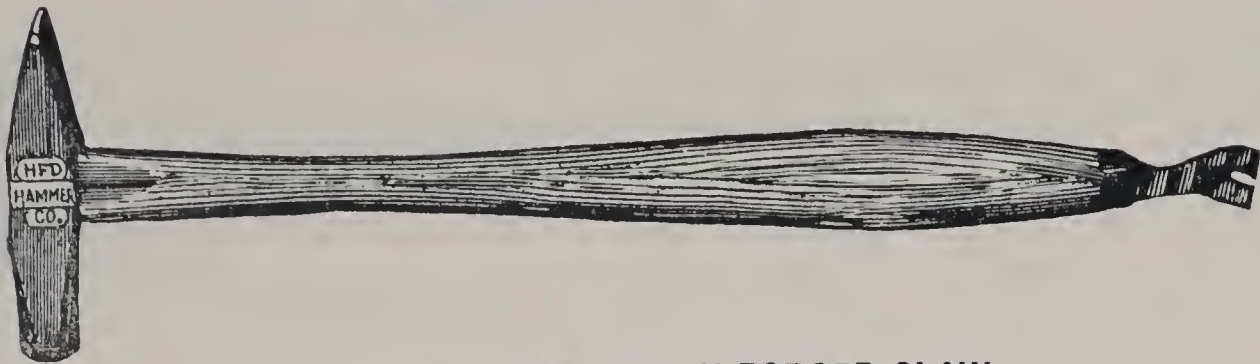
Trade Word.			Price.
Cooper.	10 inches	.....per doz.,	\$25.00
Co-operate.	12 "	....."	30.00
Co-operating.	15 "	....."	40.00

For Explanation of Trade Word see page 4.



TOOLS.

TACK HAMMERS—Stubs' Finish.



Trade Word.	Weight.	SOLID CAST STEEL, WITH FORCED CLAW.	Price.
Co-operation.	4 oz .....		per doz., \$5.00

MAYDOLE'S ADZE EYE HAMMER.



Trade Word.	Weight.	CAST STEEL.	Price.
Coopering.	7½ ounces .....		per doz., \$5.00
Co-ordinate.	13 " .....		" 6.00
Co-ordinately.	1 pound .....		" 7.50
Cope.	1 " 4 ounces .....		" 8.00

MAYDOLE'S BELL FACE JOINER'S.



Trade Word.	Weight.	CAST STEEL.	Price.
Copeck.	11 ounces .....		per doz., \$4.00

MAYDOLE'S ADZE EYE BELL FACE.



Trade Word.	Weight.	CAST STEEL.	Price.
Copernican.	7 ounces .....		per doz., \$5.00
Copestone.	12 " .....		" 6.00
Copied.	1 " .....		" 7.00
Coping.	1 " 3 ounces .....		" 8.00

For Explanation of Trade Word see page 4.



TOOLS.  
ENGINEER'S HAMMERS.



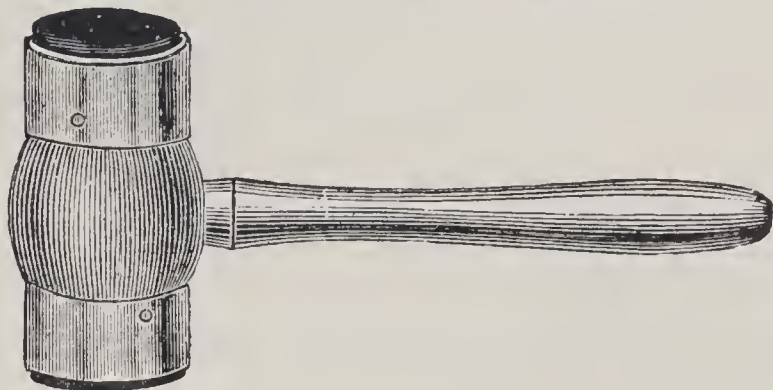
Trade Word.	Weight.	Price.
Copious.	1 lb. 2 oz.....	per doz. \$ 9.00
Copiously.	1 " 9 " .....	" 10.50
Copiousness.	2 " .....	" 12.00

RIVETING HAMMER.

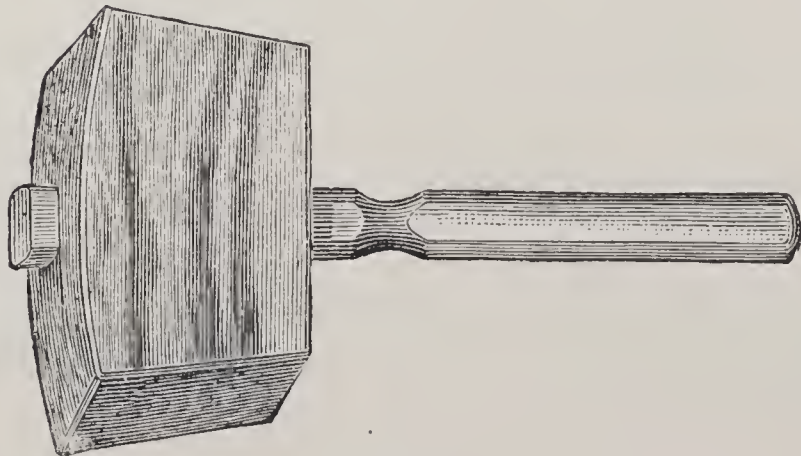


Trade Word.	Weight.	Price.	Trade Word.	Weight.	Price.
Copy.	4 oz.....per doz.	\$3.00	Copyist.	1 lb. 2 oz.....Per doz.	\$5.00
Copyhold.	7 " .....	3.50	Copyright.	1 " 8 " .....	6.00
Copyholder.	13 " .....	4.25			

MALLETS.—Fiber Heads.



Trade Word.	Diam. In.	Wood Body and Handle.	Price.
Coquet.	2 .....	each,	\$0.75
Coquetry.	2½ .....	"	1.00
Coquettish.	3 .....	"	1.50



SQUARE HICKORY.			SQUARE LIGNUM-VITÆ.		
Trade Word.	Size.	Price.	Trade Word.	Size.	Price.
Coral.	2 x 3½ x 6 in.....	\$0.30	Cord.	2 x 3½ x 6 in.....	\$0.50
Coraline.	2½ x 3¾ x 6½ " .....	40	Cordage.	2½ x 3¾ x 6½ " .....	.65

For Explanation of Trade Word see page 4.



TOOLS.



THE LIGHTNING SCREW PLATE.

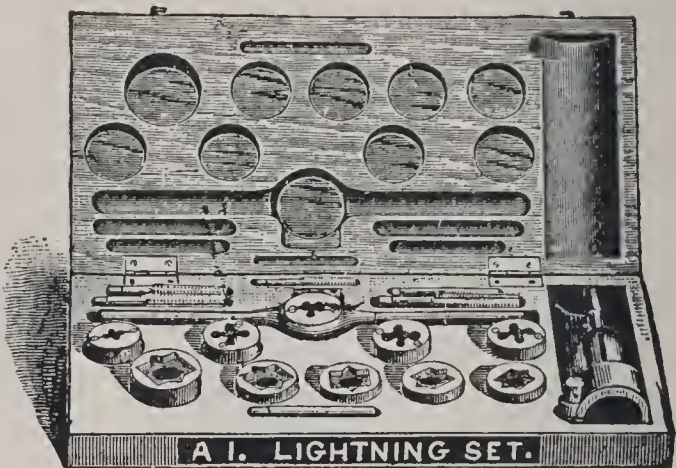
ASSORTMENT O, STOCK 6 INCHES LONG.

Full set of No. 0, with 14 sizes taps and dies,  $\frac{5}{64}$  to  $\frac{9}{32}$ , tap wrench, bit brace holder, and holder for lathe use.

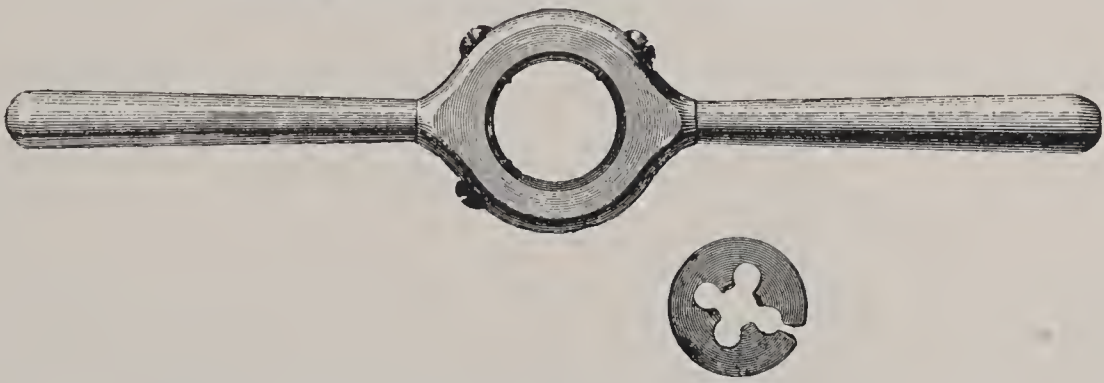
Trade Word.		Price.
Cordate.	.....	\$25.00
Corded.	Dies .....	1.00
Cordial.	Guides.....	.25
Cordially.	Taps.....	.50
Cordovan.	Wrench.....	.60
Corduoy.	Stock .....	1.25
Cordwain.	Bit Brace Holder.....	2.25
Core.	Lathe.....	2.25

THE A1 LIGHTNING SET.

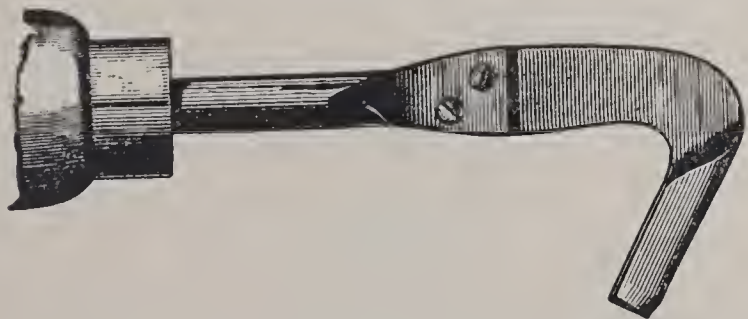
Trade Word.		Price.
Corelation.	Complete Set, with taps and dies— $\frac{3}{16}$ , $\frac{1}{4}$ , $\frac{5}{16}$ , $\frac{3}{8}$ and $\frac{7}{16}$ in.—stock, bit brace holder, and 5 nut wrenches, in case. ....	\$17.50
Corinthian.	Bit Brace Holder alone (fitting all above sizes).....	2.25
Cork.	Nut Wrenches, each.....	.25



DIAMOND SCREW PLATE.



Trade Word.		Price.
Corking.	Diamond A Plate, with tap wrench. Plate, 5 in. long; tap wrench, 5 in. long; 6 taps and 6 dies, cutting 4, 36; 6, 32; 8, 32; 10, 24; 12, 24; 14, 20.....each,	\$9.00
Corkscrew.	Diamond B Plate, with tap wrench. Plate, 5 in long; tap wrench, 5 in. long; 5 taps and 5 dies, cutting 4, 36; 6, 32; 8, 32; 10, 24; 12, 24.....each,	8.00
Corky.	Diamond C Plate, with tap wrench. Plate, 5 in. long; tap wrench, 5 in. long; 4 taps and 4 dies, cutting 6, 32; 8, 32; 10, 24; 12, 24.....each,	7.50



NEW STYLE FLOOR GROOVER WITH REMOVABLE BLADES.

Trade Word.		Price.
Cormorant.	Complete, with handle.....each,	\$1.50
Corn.	Extra blades .....	per doz., 9.00

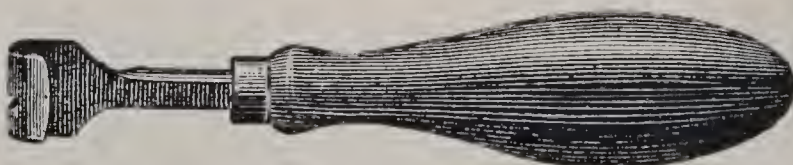
IMPROVED PISTOL HANDLE FLOOR GROOVER HOLDER.



Heavy rosewood handle, with brass socket and set screw to hold groover firmly in its place.

Trade Word.		Price.
Cornelian.....	.....each,	\$2.00

FLOOR GROOVER.



Best cast steel, sharpened and ready for use.

Trade Word.		Price.
Corner .....	.....each,	\$0.80
Cornet.	With common handle ... ..	“ 1.00

For Explanation of Trade Word see page 4.



TOOLS.

SAWS.

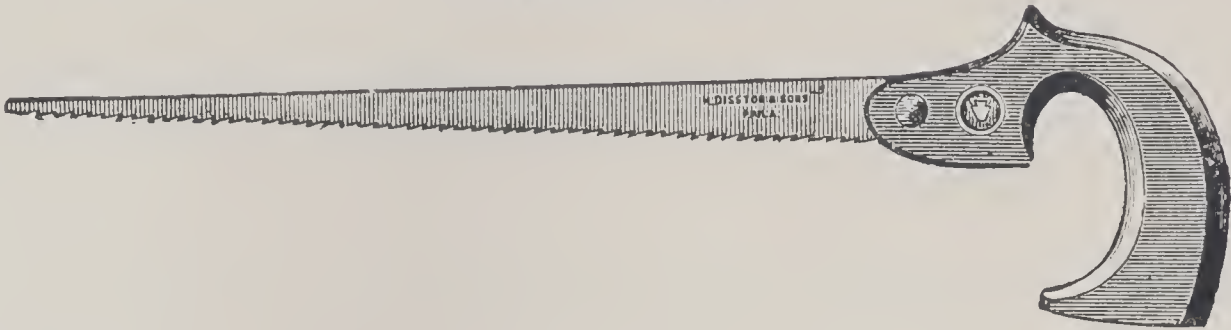
KEY-HOLE SAWS AND PADS.



Combining Key-Hole Saw, Saw Pad and Screw Drivers.

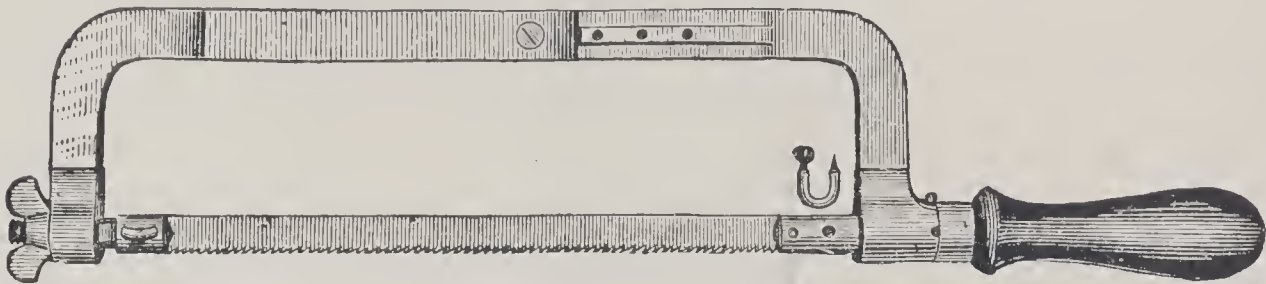
Trade Word.		Price.
Cornetcy.	Complete.....	each, \$0.50
Cornice.	Extra blades.....	“ .25

COMPASS SAW.



Trade Word.	Length, Inches.	Price.
Cornish.	10.....	\$0.40
Cornucopia.	12.....	.45
Corollary.	14.....	.50

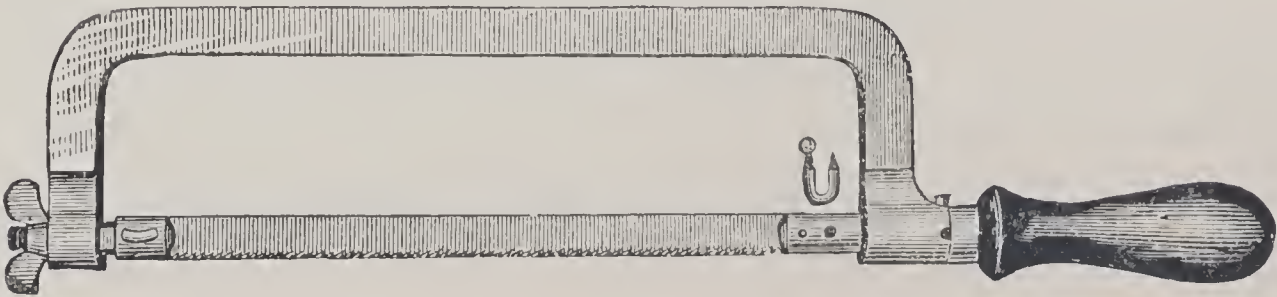
HACK SAW—WITH EXTENSION FRAME.



Nickel plated. For Saws from 6 to 9 inches.

Trade Word.		Price.
Corona.	Frame without blades.....	each, \$1.25

HACK SAW—WITH SOLID FRAME.



Nickel plated. For 8 inch Saws.

Trade Word.		Price.
Coronal.	Frame without blades .....	\$1.00

For Saw Blades, see page 194.

For Explanation of Trade Word see page 4.



TOOLS.

HACK SAWS.



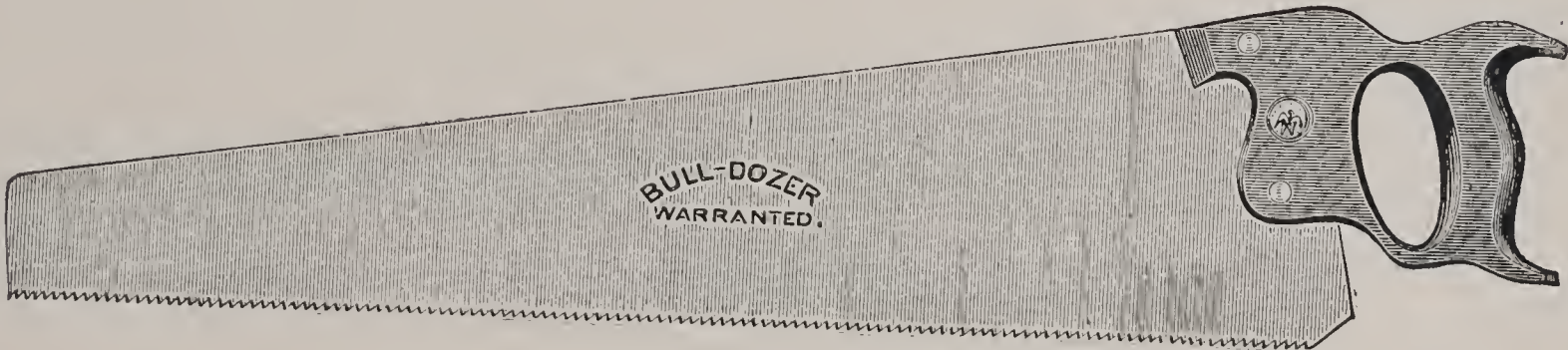
PATENT, FLEXIBLE BACK, HACK SAW BLADES.

Manufactured and tempered by an entirely new process for iron and steel. They will cut better and outwear any other Saw in the market. When wanted for Iron or Brass Tubing, please state, so that Saws of the right temper may be furnished.

Trade Word.	Length.		Price.
Coroner.	6 inches.	..... per doz.,	\$1.00
Corporal.	7 “	..... “	1.10
Corporally.	8 “	..... “	1.20
Corporate.	9 “	..... “	1.30
Corporation.	10 “	..... “	1.40
Corpulence.	11 “	..... “	1.50
Corpulent.	12 “	..... “	1.75

When sent by mail, 6 cents per dozen extra will be charged for postage.

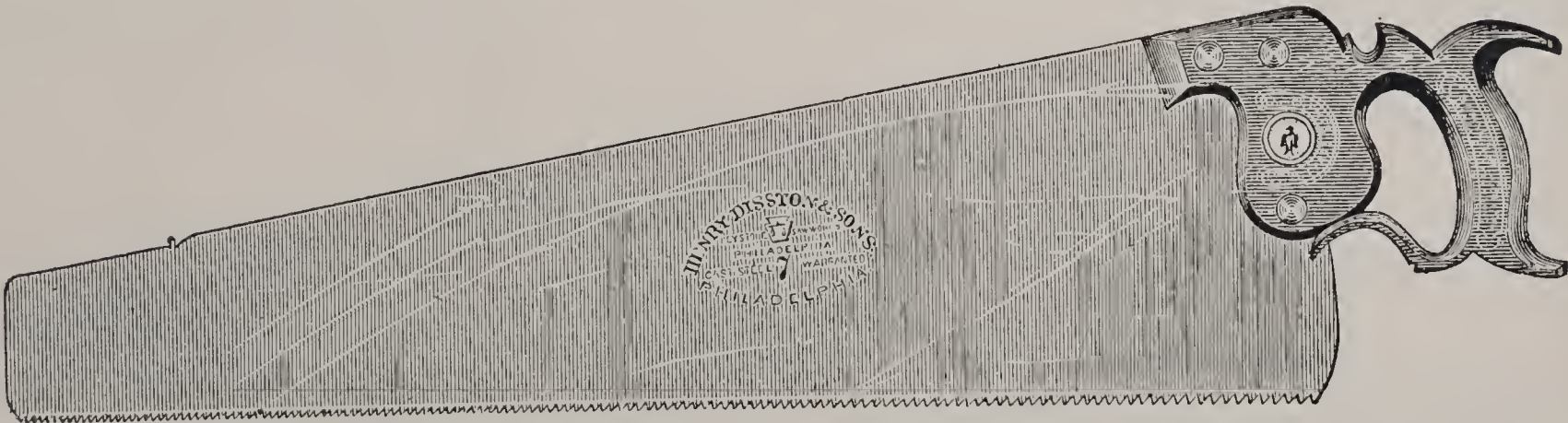
HAND SAWS (Bull-Dozer).



Beech Handle, Polished Edge, Four Rivets.

Trade Word.	Size.		Price.
Correct.	18 inches.	..... each,	\$0.60
Corrected.	20 “	..... “	.75
Correction.	26 “	..... “	1.00

DISSTON'S HAND SAWS.



Trade Word.	Size.		Price.
Corrective.	16 inches.	..... each,	\$1.40
Correctly.	18 “	..... “	1.60
Correspond.	20 “	..... “	1.75
Correspondence.	24 “	..... “	2.00

For Explanation of Trade Word see Page 4.



TOOLS.

DRAWING KNIVES.

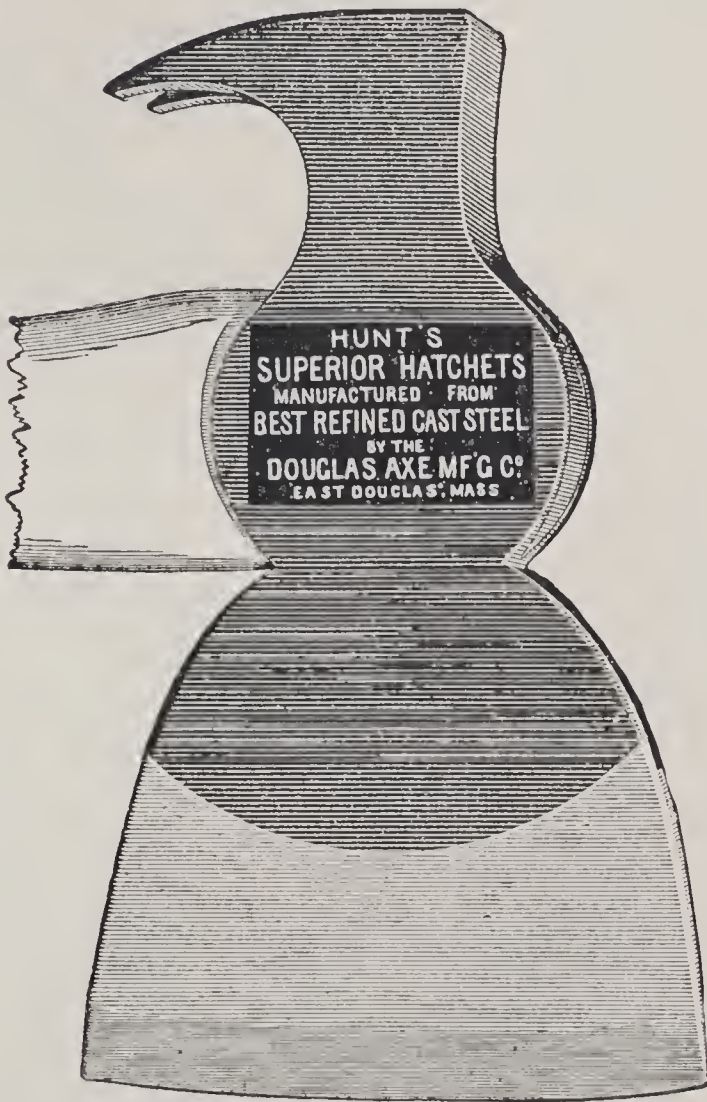


FOR SHAVING POLES, TELEGRAPH PATTERN.

Extra wide and strong blade. Superior quality.

Trade Word.		Price.
Corridor.	14 inch. ....	\$3.50

HATCHETS.



Extra Cast Steel, Warranted.

CLAW.

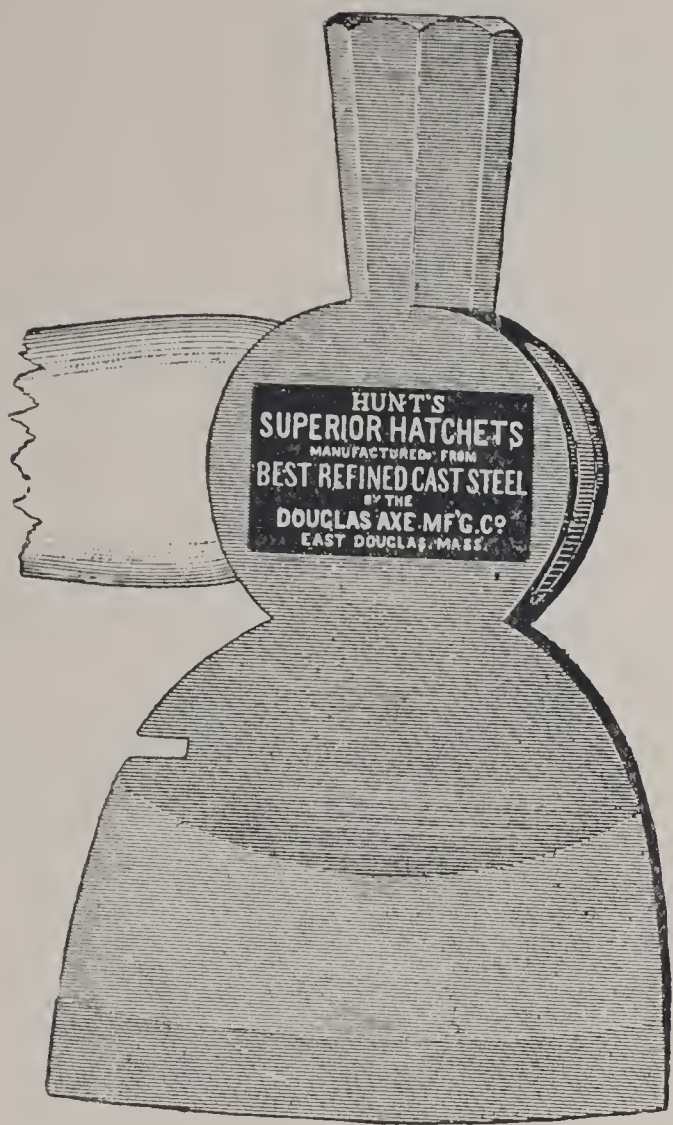
Trade Word.		Price.
Corrigible.	Cut 3½ inches. ....	\$1.00
Corroborate.	“ 4 “ .....	1.25
Corroborating.	“ 4½ “ .....	1.50

For Explanation of Trade Word see page 4.



TOOLS.

HATCHETS.



EXTRA CAST STEEL WARRANTED.

Shingling, Bronzed, Polished.

Trade Word.		Price.
Corrode.	Cut 3½ inches.....	\$0.75
Corroded.	“ 4 “ .....	.85
Corroding.	“ 4½ “ .....	1.00

HAND AXE.

EXTRA CAST STEEL WARRANTED.

Bronzed, Polished.

Trade Word.		Price.
Corrosive.	3½ inch cut.....	\$1.25





TOOLS.

FILES AND WOOD RASPS.



BEST QUALITY.

PRICE PER DOZEN.

MILL AND ROUND.				FLAT AND SQUARE.			
Inch.	Bastard.	Second Cut	Smooth.	Inch.	Bastard.	Second Cut	Smooth.
4	\$1.80	\$2.15	\$2.40	4	\$2.00	\$2.40	\$2.65
5	2.00	2.40	2.65	5	2.20	2.60	2.90
6	2.25	2.65	2.95	6	2.50	2.95	3.25
7	2.55	3.00	3.30	7	2.90	3.40	3.75
8	2.90	3.40	3.70	8	3.40	4.00	4.35
9	3.30	3.85	4.20	9	4.00	4.70	5.10
10	3.80	4.40	4.80	10	4.70	5.45	5.90
11	4.50	5.20	5.65	11	5.60	6.50	7.05
12	5.40	6.20	6.75	12	6.70	7.70	8.40
13	6.50	7.45	8.05	13	8.00	9.15	10.00
14	7.80	8.90	9.65	14	9.50	10.90	11.80
15	9.30	10.60	11.45	15	11.20	12.75	13.75
16	11.00	12.50	13.40	16	13.10	14.85	16.00
17	12.90	14.60	15.60	17	15.25	17.25	18.45
18	15.10	16.90	18.10	18	17.65	19.75	21.20
19	17.60	19.70	21.10	19	20.30	22.75	24.35
20	20.40	22.85	24.50	20	23.20	26.00	27.85

HAND, WARDING & PILLAR.				HALF ROUND AND THREE SQ.			
Inch.	Bastard.	Second Cut	Smooth.	Inch.	Bastard.	Second Cut	Smooth.
4	\$2.25	\$2.70	\$3.00	4	\$2.50	\$3.00	\$3.30
5	2.50	3.00	3.30	5	2.80	3.35	3.70
6	2.80	3.30	3.65	6	3.20	3.80	4.15
7	3.20	3.75	4.15	7	3.70	4.35	4.80
8	3.70	4.35	4.75	8	4.30	5.00	5.50
9	4.35	5.10	5.55	9	5.00	5.85	6.40
10	5.20	6.00	6.55	10	5.80	6.75	7.30
11	6.30	7.30	7.95	11	6.70	7.75	8.45
12	7.50	8.60	9.40	12	7.80	9.00	9.75
13	8.90	10.20	11.00	13	9.10	10.40	11.25
14	10.50	12.00	13.00	14	10.60	12.10	13.10
15	12.30	14.00	15.10	15	12.40	14.15	15.25
16	14.30	16.20	17.50	16	14.50	16.50	17.70
17	16.60	18.75	20.10	17	16.90	19.10	20.50
18	19.20	21.50	23.00	18	19.60	22.00	23.50
19	22.10	24.75	26.50	19	22.60	25.30	27.10
20	25.30	28.35	30.35	20	26.00	29.10	31.20

WOOD RASPS.

FLAT BASTARD.

6	7	8
\$4.20	5.00	6.10

HALF ROUND AND FLAT.

9	10	11	12	13	14	15	16	inch.
7.30	8.75	10.40	12.30	14.50	16.90	19.60	22.50	per doz.

In ordering files please describe as above.

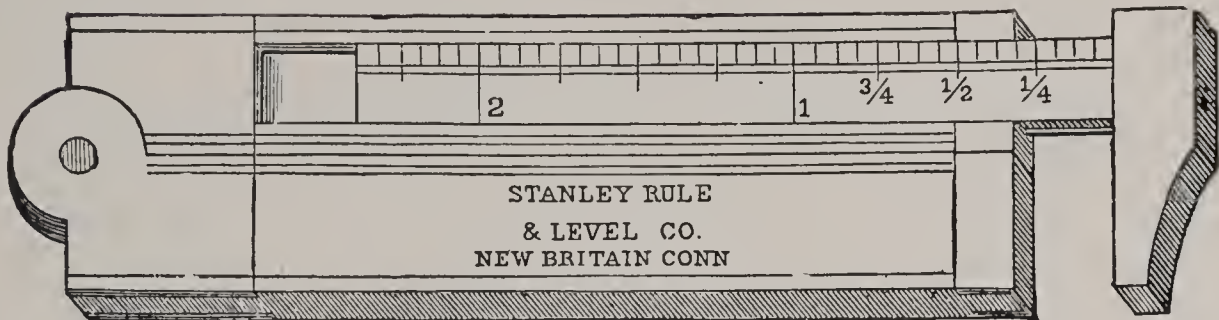
RASP.



TOOLS.

RULES.

IVORY.

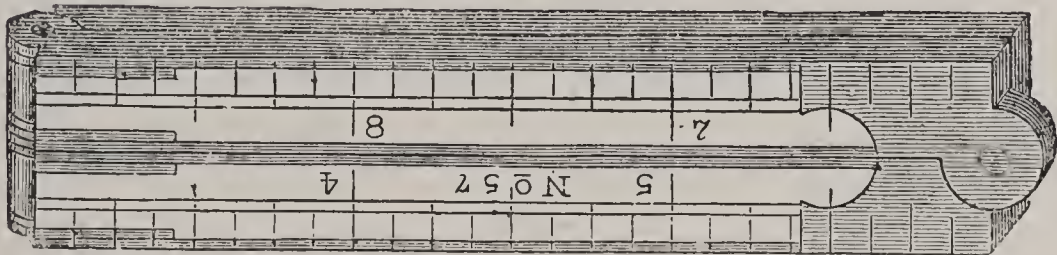


ONE FOOT. FOUR FOLD.

Trade Word.		Price.
Corrugate.	Round joint, $\frac{1}{8}$ and $\frac{1}{16}$ inch.....	\$1.25
Corrugated.	Square “ $\frac{1}{8}$ “ $\frac{1}{16}$ “ .....	1.75

BOXWOOD.

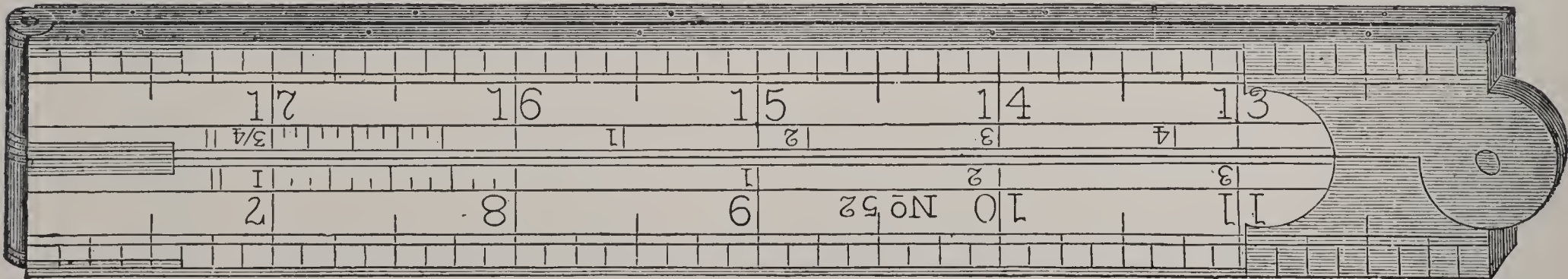
ONE FOOT. FOUR FOLD.



Trade Word.		Price.
Corrugator.	Arch joint, middle plates, $\frac{1}{8}$ and $\frac{1}{16}$ inch, $\frac{5}{8}$ inch wide.....	\$0.50
Corrupt.	“ “ edge “ $\frac{1}{8}$ “ $\frac{1}{16}$ “ $\frac{5}{8}$ “ “ .....	.75
Corrupted.	“ “ bound “ $\frac{1}{8}$ “ $\frac{1}{16}$ “ $\frac{5}{8}$ “ “ .....	1.50

BOXWOOD.

TWO FOOT. FOUR FOLD.



Trade Word.		Price.
Corruptible.	Arch joints, middle plates, $\frac{1}{8}$ , $\frac{1}{10}$ , $\frac{1}{12}$ and $\frac{1}{16}$ inches, 1 inch wide.....	\$0.75
Corruption.	“ “ edge “ $\frac{1}{8}$ , $\frac{1}{10}$ , $\frac{1}{12}$ “ $\frac{1}{16}$ “ 1 “ “ .....	1.00
Corsair.	“ “ half bound “ $\frac{1}{8}$ , $\frac{1}{10}$ , $\frac{1}{12}$ “ $\frac{1}{16}$ “ 1 “ “ .....	1.50
Corset.	“ “ bound “ $\frac{1}{8}$ , $\frac{1}{10}$ , $\frac{1}{12}$ “ $\frac{1}{16}$ “ 1 “ “ .....	1.75

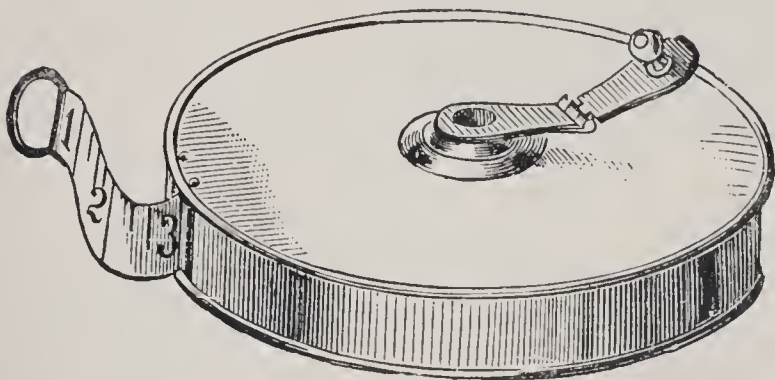
For Explanation of Trade Word see page 4.



TOOLS.

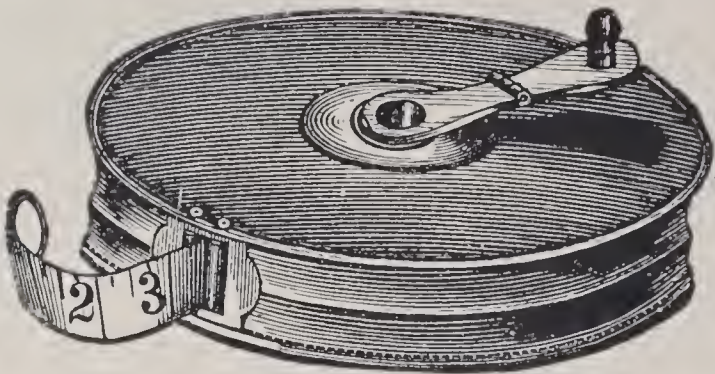
MEASURING TAPES.

ASSES' SKIN.



HALF-INCH WIDE.

PATENT LEATHER.

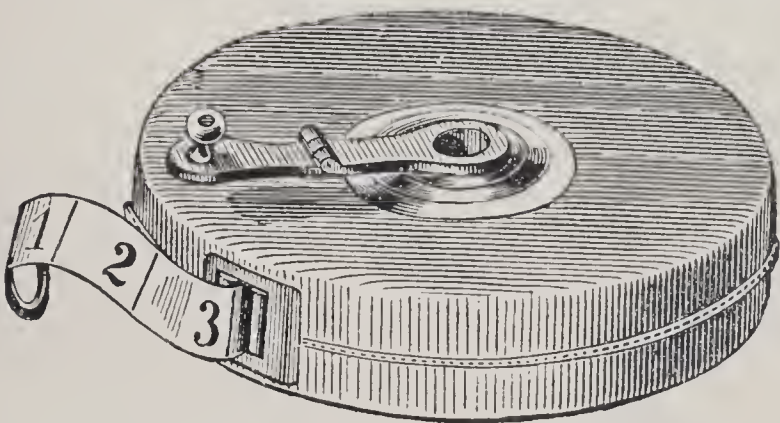


HALF-INCH WIDE.

Trade Word.		Price.
Cortege.	25 feet.....	\$0.50
Coruscate.	30 ".....	.55
Corvette.	40 ".....	.60
Cosmetic.	50 ".....	.70
Cosmic.	66 ".....	.80
Cossack.	75 ".....	.90
Costing.	100 ".....	1.00

Trade Word.		Price
Costliness.	25 feet.....	\$0.60
Costume.	30 ".....	.65
Coterie.	40 ".....	.70
Cotillon.	50 ".....	.80
Cottage.	66 ".....	.90
Cottager.	75 ".....	1.00
Cotter.	100 ".....	1.25

BEND LEATHER, HEAVY HOLLAND TAPE.



FIVE-EIGHTHS-INCH WIDE.

CHESTERMAN'S TAPE.



Trade Word.		Price.
Couch.	50 feet.....	\$1.75
Couchant.	66 ".....	1.85
Cough.	75 ".....	2.00
Coughing.	100 ".....	2.50

Trade Word.		Price.
Council.	50 feet.....	\$3.25
Counsellor.	66 ".....	3.50
Count.	75 ".....	4.00
Counted.	100 ".....	5.00

For Explanation of Trade Word see page 4.



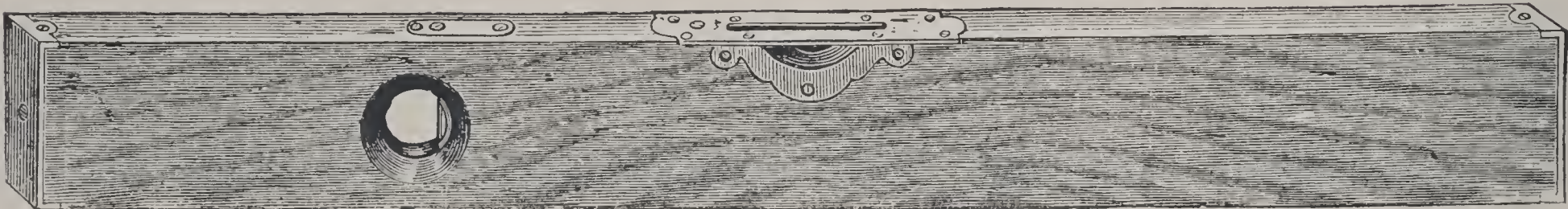
TOOLS.  
POCKET LEVEL.



Iron, brass top plate.

Trade Word.	Price.
Countenance. ....	\$1.00

ADJUSTABLE LEVEL.

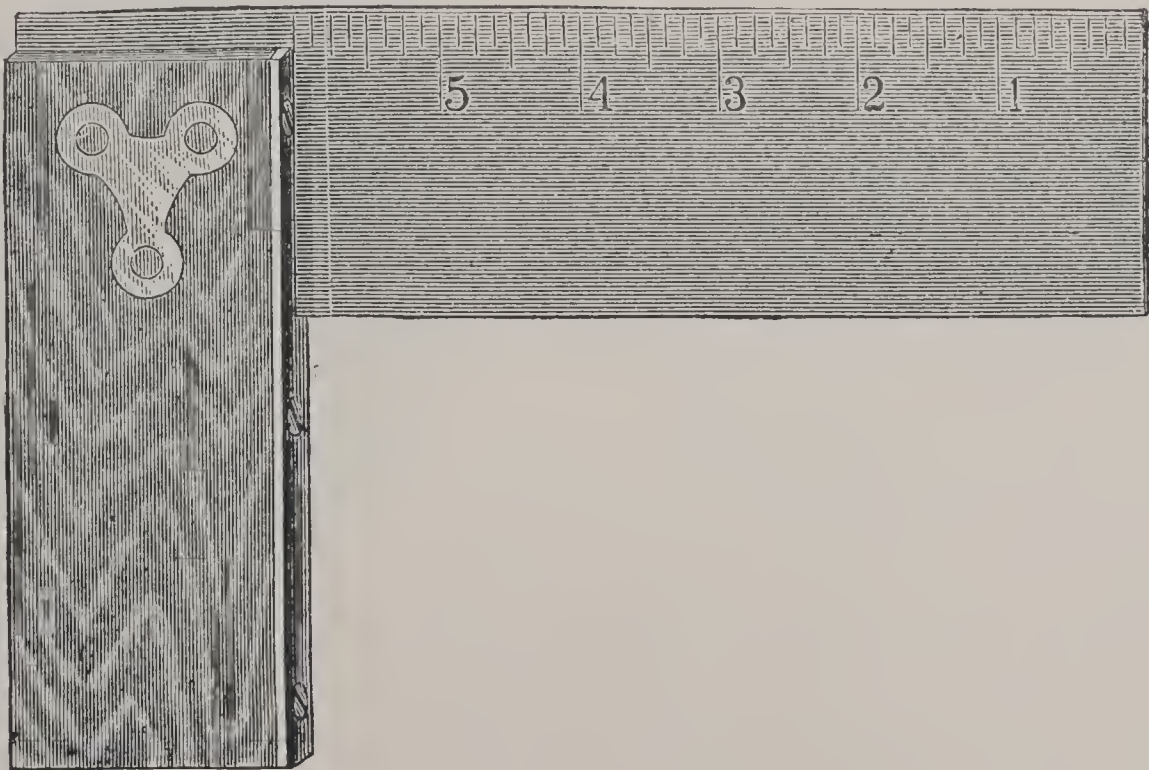


Arch top plate, mahogany, two brass lipped side views, polished and tipped, 26 to 30 inches.

Trade Word.	Price.
Counteract. ....	\$5.00

TRY SQUARES.

Rosewood handle, brass face.



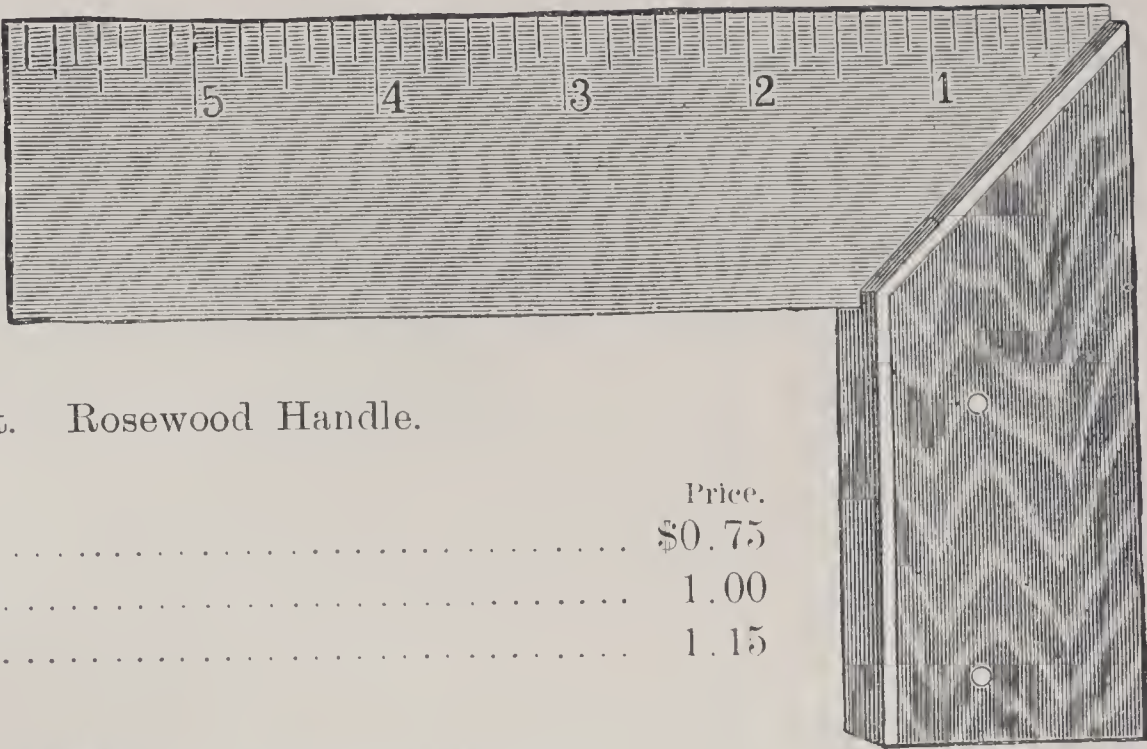
Trade Word.	Length.	Price.
Counteracting.	6 inches .....	\$0.75
Counterfeit.	7½ “ .....	.90
Countermine.	9 “ .....	1.00

For Explanation of Trade Word see page 4.



TOOLS.

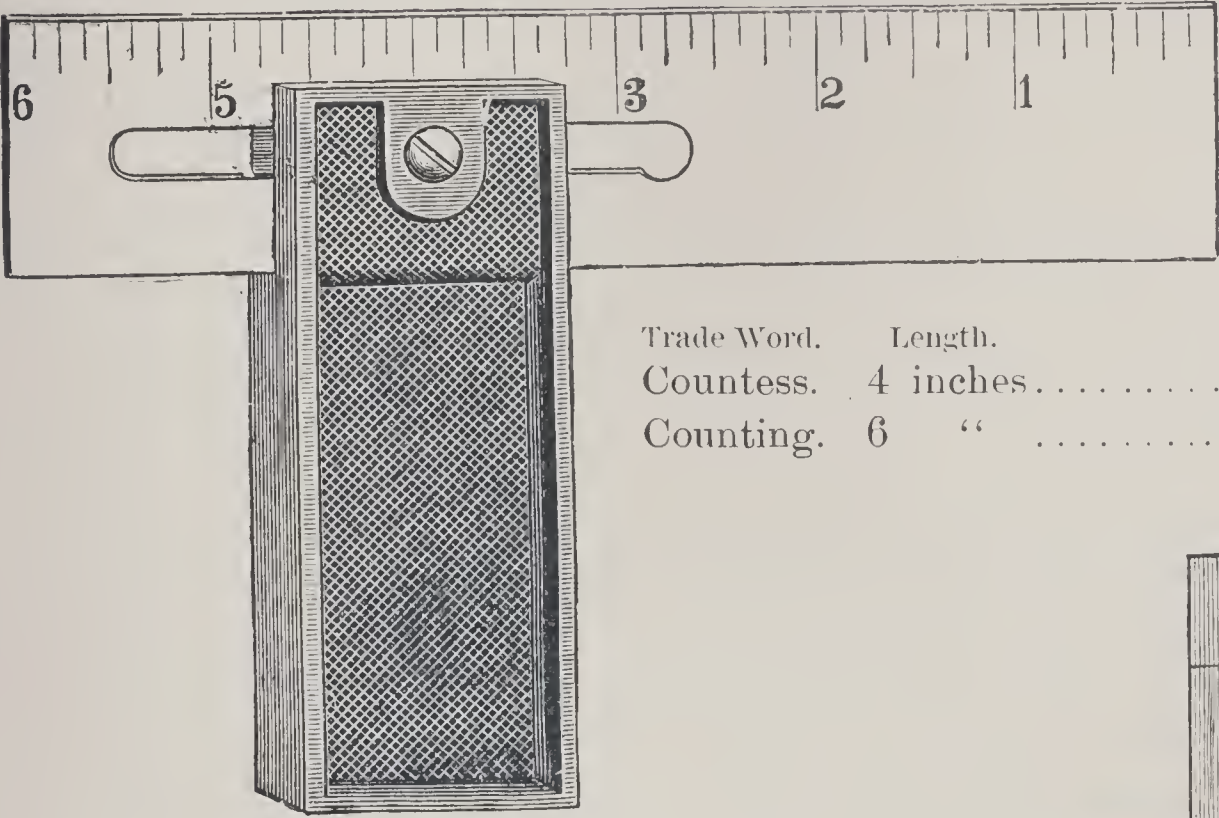
TRY AND MITRE SQUARE.



Square inside and out. Rosewood Handle.

Trade Word.	Length.	Price.
Counterpane.	6 inches .....	\$0.75
Counterpart.	7½ " .....	1.00
Counterplot.	9 " .....	1.15

IRON HANDLE, ADJUSTABLE.



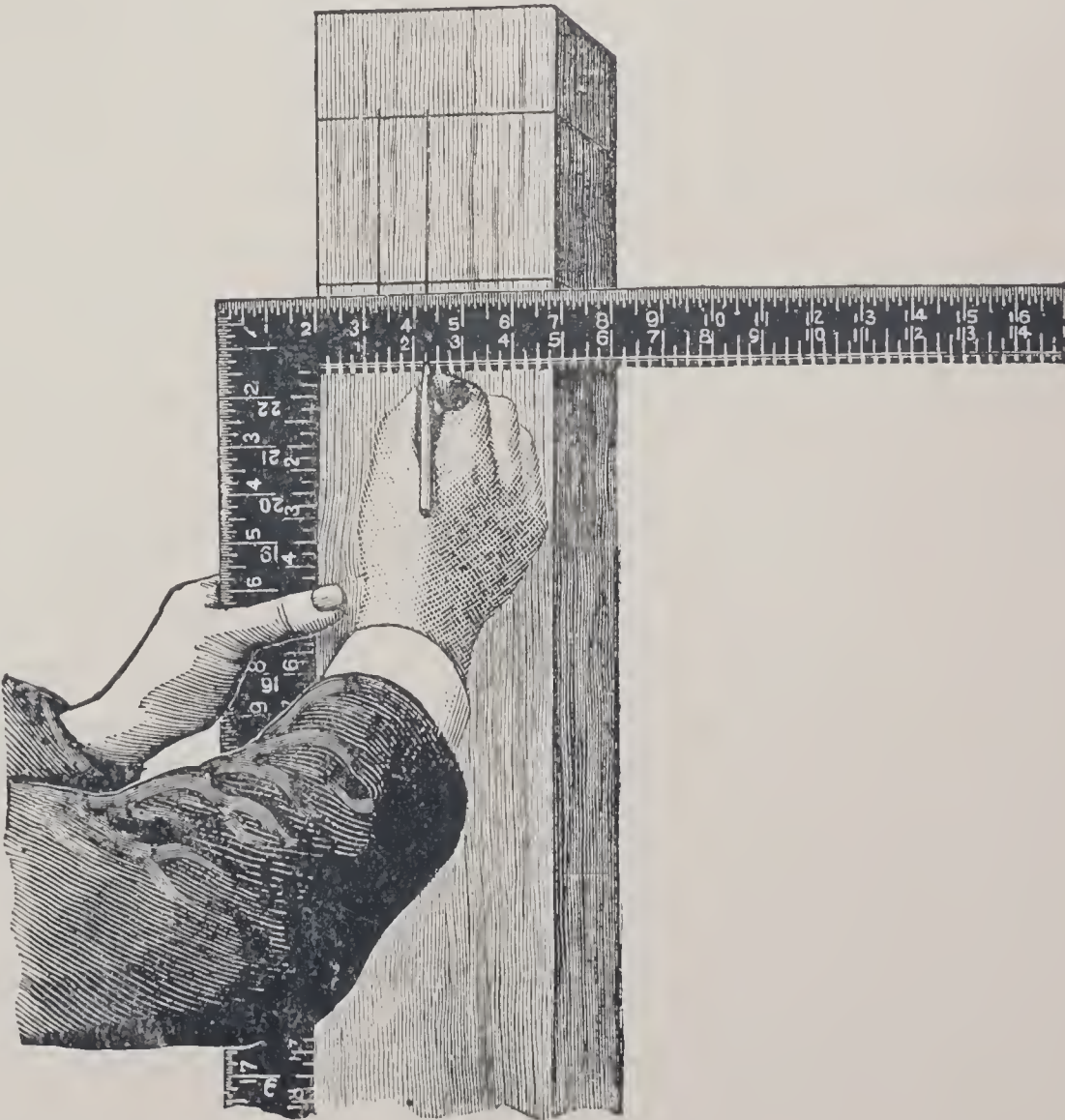
Trade Word.	Length.	Price
Countess.	4 inches .....	\$0.50
Counting.	6 " .....	.75

STEEL SQUARE.

2 Inches Wide.

Graduated in  $\frac{1}{4}$ ,  $\frac{1}{8}$ ,  $\frac{1}{2}$  and  $\frac{1}{16}$  inches, with Brace Measure and Essex's new Board Measure, giving feet and inches in full.

Trade Word.	Price.
Country. ....	\$5.00



For Explanation of Trade Word see page 4.



## WIRE.



I N listing this important branch of our business, we feel fully justified in saying that our facilities for handling it are unexcelled; carrying, as we do, in our Chicago warehouse, complete stocks of all sizes in the various grades ranging from the Underwriters' to Okonite. Our factory facilities are also such as to enable us to execute the largest orders on short notice and with great expedition.

We are making a feature of this department the manufacture of special Okonite Wires and Cables for use in mines and other places where a high insulation is most essential, and are prepared to submit quotations on any kind desired. Our Improved Candee Wire is meeting with splendid success, and is being universally commended by those who have had experience in its use for Electric Light construction and Electric Railway feeder wires.



## OKONITE WIRE AND PRODUCTS.

WE ARE THE GENERAL WESTERN AGENTS OF



THE INTERNATIONAL OKONITE COMPANY (LIMITED),  
OF NEW YORK,

MANUFACTURERS OF

**Telephone, Telegraph and Electric Light Wires and Cables, for  
Aerial, Submarine and Underground Uses.**

*ALL WIRES AND CABLES GUARANTEED.*

### CLAIMS.

The principal claims for the "Okonite" Insulated Wire, manufactured by this Company, are based upon superiority of insulation, durability, toughness and resistance to the decomposing influence of the elements, which have so destructive an effect upon most insulated wires after exposure and use.

We claim that the insulating qualities of "Okonite" stand a higher test than any other practical medium used for this purpose.

Before leaving the manufactory, all wires and cables are tested to the highest degree, after three days' continuous immersion in water, with a most delicate Thomson Reflecting Galvanometer, and we guarantee them to stand the test of insulation at which they are certified.

The tenacity and toughness of the material renders it non-labile to destruction by reason of abrasion or rubbing of foreign substance.

It is not susceptible to bad effect from extreme cold or heat. We have subjected the "Okonite" wire alternately to a temperature of 20 degrees below zero and then to 250 degrees above zero, repeating the test a number of times upon the same wire, and the result showing no apparent change in its quality.

We are enabled to produce a most perfect evenness of covering with new and improved apparatus which we have designed for this purpose, and by a new method for the manipulation of the material during the process of vulcanization.

We have submitted our compound to numerous chemical tests, and find it will stand, without harm, all that have been applied; and our wire is especially proof against illuminating and other gases and heat from steam pipes, which so often prove fatal to underground wires.

We, without hesitation, refer to parties who have had practical experience with our wire.

We desire that a trial should be given our wire by those interested in the use of this article, and we should be happy to offer every assistance at our command for testing, etc.

Particular attention is called to our cables, composed of any desired number of conductors, the whole being protected with a covering of gas and waterproof material known as Standard Covering. This covering is stronger and more durable than any other, and relieves aerial cables from the strain generally imposed upon the conductors.

Our OKONITE TAPE we would recommend for parties desiring thoroughly waterproof joints.

Its insulation resistance is extremely high, and those who have used it are unanimous in their declarations that it is the best tape in the market.

Further information will be gladly given upon application.



OKONITE WIRE AND PRODUCTS.

FORMULÆ FOR ASCERTAINING WEIGHTS, SIZES AND ELECTRICAL QUALITIES OF OKONITE COVERED WIRES AND CABLES.

We beg leave to offer the public the following data referring to the properties of our insulation compound, termed OKONITE, for the purpose of enabling every electrician to calculate approximately by himself the different sizes, weight, cost and electrical qualities of any core to be constructed.

All the figures and formulæ, however, are founded upon the following standards:

The diameters given are in mils,  $\text{---.001}$  of an inch.

The weight is in the avoirdupois, 1 lb.  $\text{---}$  16 oz.

The standard length for the formulæ is the knot or nautical mile, 2,029 yards.

The standard temperature for all observations is 60 degrees Fahrenheit.

REMARKS ON COPPER CONDUCTORS.

The specific gravity of pure annealed copper is about 8.9.

One cubic foot of copper weighs about 555 lbs.

One nautical mile of any size of copper wire will weigh  $\frac{d^2}{55}$  lbs. where d=diameter in mils.

The weight of a stranded conductor is about  $\frac{d^2}{70.4}$  lbs.

The diameter of any copper wire weighing W lbs. per knot is about  $7.4 \sqrt{W}$  mils, and for stranded conductors  $8.4 \sqrt{W}$  mils.

The conductivity of our copper wire is commonly 96 to 98 per cent. of pure copper.

REMARKS ON OKONITE INSULATION.

The specific gravity of Okonite is about 1.393.

One cubic foot weighs about 87.12 lbs.

The weight of Okonite insulation on any core per nautical mile is  $\frac{D^2-d^2}{312}$  where D=diameter of core, d=diameter of conductor, both in mils.

The external diameter of an Okonite core will be then  $D=\sqrt{312 W + 55 w}$ .

If the conductor is stranded, the diameter is  $D=\sqrt{312 W + 70.4 w}$ .

The charge per nautical mile of an Okonite insulated core is about  $\frac{1588}{\log \frac{D}{d}}$ , the first four figures of the logarithm taken as a whole number.

The insulation resistance of Okonite covered wire per nautical mile is  $R=.6 (\log D-\log d)$  Megohms at 60 degrees Fahrenheit, after one minute's electrification, where D=diameter of core, d=diameter of conductor and the first four figures of the logarithm are regarded as a whole number.

The resistance of Okonite Insulation increases or diminishes according to lower or higher temperature in the following ratio:

$R=R. (1\pm.047N)$  for every degree Fahrenheit.

CO-EFFICIENTS OF TEMPERATURE FROM 50 TO 70 DEGREES FAHRENHEIT.

t+	Const.	t+	Const.	t—	Const.	t—	Const.
60	1.000	54	1.282	60	1.000	66	.718
59	1.047	53	1.329	61	.953	67	.671
58	1.094	52	1.376	62	.906	68	.624
57	1.141	51	1.423	63	.859	69	.577
56	1.188	50	1.470	64	.812	70	.530
55	1.235			65	.765		



OKONITE WIRE AND PRODUCTS.

BIRMINGHAM WIRE GAUGE.



No. 16 B. W. G.; diameter,  $\frac{9}{64}$ ; insulation, 1,000 megohms per mile Plain Okonite Wire.



No. 16 B. W. G.; diameter,  $\frac{9}{64}$ ; insulation, 1,000 megohms per mile Braided Okonite Wire.

Wires listed on this page are mostly special sizes, and are generally used for telegraph and telephone work. Do not get these confused with Electric Light sizes on next page.



PLAIN INSULATION.							BRAIDED INSULATION.						
	Size of Wire Birmingham Gauge.	Size of In- sulation.	Outside Diameter of Insulation.	Weight Per Mile.	Insulation Resistance Per Mile	Price Per Foot.		Size of Wire Birmingham Gauge.	Size of In- sulation.	Outside Diameter of Insulation.	Weight Per Mile.	Insulation Resistance Per Mile.	Price Per Foot.
Trade Word.	B.W. G.	B.W. G.	Inches.	Pounds	Meg- ohms.	Cents.	Trade Word.	B.W. G.	B.W. G.	Inches.	Pounds	Meg- ohms.	Cents.
Dab. ....	24	14	.....	29	1000	1 $\frac{5}{8}$	Darling. ....	24	14	.....	43	1000	1 $\frac{7}{8}$
Dabble. ....	24	13	$\frac{3}{32}$	33	1200	1 $\frac{5}{16}$	Dart. ....	24	13	$\frac{3}{32}$	48	1200	1 $\frac{9}{16}$
Daft. ....	22	13	$\frac{3}{32}$	45	1000	1 $\frac{8}{16}$	Darted. ....	22	13	$\frac{3}{32}$	60	1000	2 $\frac{1}{4}$
Dagger. ....	20	12	$\frac{7}{64}$	56	1000	2 $\frac{1}{4}$	Dash. ....	20	12	$\frac{7}{64}$	71	1000	2 $\frac{1}{2}$
Daily. ....	20	11	$\frac{4}{32}$	65	1200	2 $\frac{1}{16}$	Dashing. ....	20	11	$\frac{4}{32}$	80	1200	2 $\frac{3}{4}$
Daintily. ....	18	11	$\frac{4}{32}$	81	1000	2 $\frac{3}{4}$	Dastard. ....	18	11	$\frac{4}{32}$	96	1000	3
Daisy. ....	18	10	.....	91	1200	3	Date. ....	18	10	.....	107	1200	3 $\frac{1}{4}$
Dale. ....	18	8	$\frac{5}{32}$	119	1600	3 $\frac{1}{8}$	Dating. ....	18	8	$\frac{5}{32}$	137	1600	3 $\frac{3}{4}$
Dally. ....	18	.....	$\frac{6}{32}$	155	2000	4 $\frac{3}{8}$	Dative. ....	18	.....	$\frac{6}{32}$	175	2000	4 $\frac{3}{8}$
Damage. ....	18	5	$\frac{7}{32}$	197	2400	5 $\frac{1}{4}$	Daub. ....	18	5	$\frac{7}{32}$	220	2400	5 $\frac{1}{2}$
Damaging. ....	18	3	$\frac{8}{32}$	244	2600	6 $\frac{7}{8}$	Daughter. ....	18	3	$\frac{8}{32}$	271	2600	7 $\frac{1}{16}$
Damask. ....	18	2	$\frac{9}{32}$	299	3000	9 $\frac{5}{16}$	Daunt. ....	18	2	$\frac{9}{32}$	329	3000	9 $\frac{1}{8}$
Damp. ....	16	9	$\frac{9}{64}$	126	1000	3 $\frac{5}{8}$	Dauntless. ....	16	9	$\frac{9}{64}$	143	1000	3 $\frac{5}{8}$
Dampness. ....	16	8	$\frac{5}{32}$	140	1400	3 $\frac{1}{8}$	Dauphin. ....	16	8	$\frac{5}{32}$	158	1400	4 $\frac{1}{8}$
Damsel. ....	16	7	.....	157	1500	4 $\frac{1}{8}$	Dawn. ....	16	7	.....	176	1500	4 $\frac{3}{8}$
Dance. ....	16	.....	$\frac{6}{32}$	164	1600	4 $\frac{1}{16}$	Dawning. ....	16	.....	$\frac{6}{32}$	184	1600	4 $\frac{3}{4}$
Dancing. ....	16	6	$\frac{13}{64}$	178	2000	4 $\frac{5}{16}$	Day. ....	16	6	$\frac{13}{64}$	198	2000	5
Dancer. ....	16	5	$\frac{7}{32}$	200	2400	5 $\frac{1}{4}$	Daytime. ....	16	5	$\frac{7}{32}$	223	2400	5 $\frac{1}{2}$
Dandify. ....	16	3	$\frac{8}{32}$	240	2600	6 $\frac{3}{8}$	Dazzle. ....	16	3	$\frac{8}{32}$	267	2600	6 $\frac{5}{8}$
Dandle. ....	16	2	$\frac{9}{32}$	288	2800	7 $\frac{3}{4}$	Deacon. ....	16	2	$\frac{9}{32}$	318	2800	8 $\frac{1}{4}$
Dandy. ....	14	8	$\frac{5}{32}$	176	1000	4 $\frac{5}{8}$	Deaconness. ....	14	8	$\frac{5}{32}$	194	1000	5
Danger. ....	14	7	$\frac{11}{64}$	192	1200	5	Deaden. ....	14	7	$\frac{11}{64}$	211	1200	5 $\frac{1}{4}$
Dangerous. ....	14	.....	$\frac{6}{32}$	201	1400	5 $\frac{1}{4}$	Deadly. ....	14	.....	$\frac{6}{32}$	221	1400	5 $\frac{1}{8}$
Dangling. ....	14	5	$\frac{7}{32}$	236	1600	6	Deadness. ....	14	5	$\frac{7}{32}$	259	1600	6 $\frac{3}{8}$
Dapper. ....	14	3	$\frac{8}{32}$	273	1800	6 $\frac{7}{8}$	Deaf. ....	14	3	$\frac{8}{32}$	300	1800	7 $\frac{3}{8}$
Dapple. ....	14	2	$\frac{9}{32}$	321	2000	8 $\frac{1}{4}$	Deafen. ....	14	2	$\frac{9}{32}$	351	2000	8 $\frac{1}{8}$
Dare. ....	12	6	$\frac{13}{64}$	275	1000	6 $\frac{3}{8}$	Deafness. ....	12	6	$\frac{13}{64}$	295	1000	6 $\frac{5}{8}$
Daring. ....	12	5	$\frac{7}{32}$	290	1600	6 $\frac{1}{8}$	Deal. ....	12	5	$\frac{7}{32}$	313	1600	7 $\frac{1}{8}$
Darken. ....	10	5	$\frac{7}{32}$	369	1000	7 $\frac{1}{2}$	Dealing. ....	10	5	$\frac{7}{32}$	394	1000	7 $\frac{3}{4}$
Darkness. ....	10	4	$\frac{15}{64}$	387	1200	8	Deanery. ....	10	4	$\frac{15}{64}$	413	1200	8 $\frac{1}{4}$

Use Okonite Tape for making Waterproof joints. Use Improved Candee Wire for superior line construction. Any size of Wire or insulation can be furnished, for which special quotations will be given upon application.

For Explanation of Trade Word see page 4.



OKONITE WIRE AND PRODUCTS.

AMERICAN OR BROWN & SHARPE'S GAUGE.



No. 6 A. W. G.; diameter, 10-32; insulation, 1,000 megohms per mile Plain Okonite Wire.



No. 6 A. W. G.; diameter, 10-32; insulation, 1,000 megohms per mile Braided Okonite Wire.  
These sizes are generally used for Electric Light work.

PLAIN INSULATION. American Gauge.								BRAIDED INSULATION. American Gauge.							
Trade Word.	Size of Wire.	Style of Conductor.		Outside Diameter.	Weight per mile	Insulation Resistance per mile.	Price per foot.	Trade Word.	Size of Wire.	Style of Conductor.		Outside Diameter.	Weight per mile.	Insulation Resistance per mile.	Price per foot.
	A.W.G.	No. of strands	Size of Wires.	In.	Lbs.	Meg.	Cts.		A.W.G.	No. of strands	Size of Wires.	In.	Lbs.	Meg.	Cts.
Dearly.	0000	19	12 B. W. G.	. . . .	4950	1000	83	Decency.	0000	19	12 B. W. G.	. . . .	5235	1000	90
Dearness.	000	19	11 A. W. G.	.720	3560	1000	66	Decent.	000	19	11 A. W. G.	.720	3771	1000	72
Dearth.	00	12	12 B. W. G.	.675	2980	1000	54	Deception.	00	12	12 B. W. G.	.675	3170	1000	58½
Debar.	0	19	15 B. W. G.	.650	2315	1000	45	Decide.	0	19	15 B. W. G.	.650	2498	1000	48
Debarring.	1	1	Solid	.515	1820	1000	32	Deciding.	1	1	Solid	.515	1935	1000	34½
Debasing.	1	19	16 B. W. G.	.575	1910	1000	35	Decimal.	1	19	16 B. W. G.	.575	2045	1000	37½
Debatable.	2	1	Solid	.430	1486	1000	24	Decipher.	2	1	Solid	.430	1567	1000	25½
Debate.	2	19	17 B. W. G.	.550	1585	1000	26	Decision.	2	19	17 B. W. G.	.550	1715	1000	28½
Debater.	3	1	Solid	.410	1089	1000	18	Decisive.	3	1	Solid	.410	1161	1000	21
Debating.	3	7	11 A. W. G.	.450	1270	1000	21	Deck.	3	7	11 A. W. G.	.450	1358	1000	22½
Debauch.	3	7	11 A. W. G.	.520	1685	1500	30	Decking.	3	7	11 A. W. G.	.520	1710	1500	34½
Debenture.	4	1	Solid	.360	895	1000	15	Declaim.	4	1	Solid	.360	970	1000	16½
Debility.	4	7	14 B. W. G.	.400	1060	1000	18	Declaimant.	4	7	14 B. W. G.	.400	1128	1000	20¼
Debit.	4	7	14 B. W. G.	.460	1285	1500	22½	Declare.	4	7	14 B. W. G.	.460	1375	1500	24¾
Debited.	5	7	15 B. W. G.	.360	860	1000	14¼	Declaring.	5	7	15 B. W. G.	.360	935	1000	15
Debiting.	5	7	15 B. W. G.	.425	960	1500	18	Declension.	5	7	15 B. W. G.	.425	1047	1500	19½
Debt.	6	1	Solid	.300	614	1000	11¼	Declining.	6	1	Solid	.300	663	1000	12¼
Debtor.	6	7	16 B. W. G.	.340	720	1000	13	Declivity.	6	7	16 B. W. G.	.340	791	1000	14
Debutant.	6	7	16 B. W. G.	.400	873	1500	16¼	Decoction.	6	7	16 B. W. G.	.400	954	1500	18
Decade.	7	7	17 B. W. G.	.280	560	1000	9¾	Decompose.	7	7	17 B. W. G.	.280	605	1000	10
Decamp.	8	1	Solid	.220	369	1000	7½	Decorate.	8	1	Solid	.220	402	1000	7¾
Decant.	8	1	Solid	.238	387	1500	8½	Decoration.	8	1	Solid	.238	425	1500	9½
Decanter.	8	7	18 B. W. G.	.280	462	1000	9½	Decorator.	8	7	18 B. W. G.	.280	517	1000	10¼
Decay.	9	1	Solid	.204	294	1000	7¼	Decorum.	9	1	Solid	.204	324	1000	7½
Decayed.	10	1	Solid	.203	275	1000	6¾	Decoy.	10	1	Solid	.203	295	1000	6¾
Decease.	12	1	Solid	.165	176	1000	4¾	Decoying.	12	1	Solid	.165	194	1000	5
Deceit.	14	1	Solid	.148	126	1000	3¾	Decrease.	14	1	Solid	.148	143	1000	3¾
Deceitful.	16	1	Solid	.120	82	1000	2¾	Decree.	16	1	Solid	.120	98	1000	3
Deceive.	18	1	Solid	.109	58	1000	2½	Decrepit.	18	1	Solid	.109	73	1000	2¾
Deceiver.	20	1	Solid	.100	50	1000	2¼	Decretal.	20	1	Solid	.100	64	1000	2¼

STRANDED WIRE—Okonite Insulation.



No. 6 A. W. G. (7x16 B. W. G. stranded); diameter, .340"; insulation, 1,000 megohms per mile Plain Okonite Wire.



No. 6 A. W. G. (7x16 B. W. G. stranded); diameter, .340"; insulation, 1,000 megohms per mile Braided Okonite Wire.  
Use Manson Tape for protection against abrasion. Use Okonite Tape for making waterproof joints.

For Explanation of Trade Word see page 4.



OKONITE WIRE



TRADE MARK.

AND PRODUCTS.

OKONITE WIRE.

SPECIAL SIZES FOR FEEDERS. AMERICAN, OR BROWN & SHARPE'S GAUGE.

TRADE WORD.	PLAIN INSULATION.						TRADE WORD.	BRAIDED INSULATION.					
	A.W.G.	Area Cir. Mills.	Approx. Diam. of Strand Cond.	Out-side Diam.	Insul. Resis. per Mile.	Price per foot.		A.W.G.	Area Cir. Mills.	Approx. Diam. of Strand Cond.	Out-side Diam.	Insul. Resis. per Mile.	Price per foot.
Decry.....		900,000	1.098	1.82	1000	\$4.13	Define.....		900,000	1.098	1.82	1000	\$4.54
Decried.....		850,000	1.08	1.75	1000	3.90	Definer.....		850,000	1.08	1.75	1000	4.29
Dedicate.....		800,000			1000	3.68	Definite.....		800,000			1000	4.04
Dedicating.....		750,000	.993	1.63	1000	3.45	Definition.....		750,000	.993	1.63	1000	3.79
Deduce.....		700,000	.975	1.58	1000	3.15	Deflect.....		700,000	.975	1.58	1000	3.46
Deductible.....		618,000	.91	1.8	1000	3.53	Deflected.....		618,000	.91	1.8	1000	3.88
Deducing.....		600,000	.910	1.48	1000	2.78	Deflecting.....		600,000	.910	1.48	1000	3.05
Deduct.....		500,000	.863	1.38	1000	2.40	Deform.....		500,000	.863	1.38	1000	2.64
Deducted.....		450,000	.78	1.26	1000	2.18	Deformation.....		450,000	.78	1.26	1000	2.39
Deducting.....		402,157	.733	1.38	1000	1.98	Deformed.....		402,157	.733	1.38	1000	2.17
Deed.....		400,000	.733	1.2	1000	1.95	Deforming.....		400,000	.733	1.2	1000	2.15
Deem.....		350,000	.696	1.3	1000	1.88	Defraud.....		350,000	.696	1.3	1000	2.06
Deemed.....		350,000	.708	1.14	1000	1.65	Defrauded.....		350,000	.708	1.14	1000	1.81
Deeming.....		321,733	.65	1.2	1000	1.88	Defrauding.....		321,733	.65	1.2	1000	2.06
Deep.....		300,000	.65	1.08	1000	1.43	Defray.....		300,000	.65	1.08	1000	1.57
Deepen.....		292,322	.58	.91	1000	1.38	Defraying.....		292,322	.58	.91	1000	1.52
Deeply.....		280,835	.58	.91	1000	1.35	Defunct.....		280,835	.58	.91	1000	1.48
Deer.....		250,000	.58	.98	1000	1.25	Defy.....		250,000	.58	.98	1000	1.37
Deface.....		223,643	.522	.85	1000	1.05	Defying.....		223,643	.522	.85	1000	1.15
Defacing.....	0000	211,600			1000	.83	Degrade.....	0000	211,600			1000	.90
Defame.....		200,000	.545	.85	1000	.82	Degraded.....		200,000	.545	.85	1000	.89
Defamer.....		200,000	.52	.82	1000	.90	Degree.....		200,000	.52	.82	1000	.98
Defaming.....		180,000			1000	.75	Deign.....		180,000			1000	.83
Default.....		176,076	.498	.82	1000	.75	Deigning.....		176,076	.498	.82	1000	.83
Defaulter.....	000	167,805		.72	1000	.66	Deject.....	000	167,805		.72	1000	.72
Defeat.....		166,294	.464	.75	1000	.66	Dejection.....		166,294	.464	.75	1000	.72
Defeated.....		165,000	.453	.72	1000	.65	Delay.....		165,000	.453	.72	1000	.71
Defeating.....		155,578	.455	.73	1000	.64	Delayed.....		155,578	.455	.73	1000	.69 1/2
Defect.....	00	133,079			1000	.54	Delaying.....	00	133,079			1000	.58 1/2
Defection.....		130,000	.436	.675	1000	.53	Delegate.....		130,000	.436	.675	1000	.57 1/4
Defenceless.....		123,986	.406	.7	1000	.52	Delegated.....		123,986	.406	.7	1000	.56
Defend.....		120,000	.366	.6	1000	.51	Delegation.....		120,000	.366	.6	1000	.55
Defendant.....		111,788	.39	.69	1000	.48	Delicacy.....		111,788	.39	.69	1000	.52
Defended.....		105,646	.39	.67	1000	.45	Delicate.....		105,646	.39	.67	1000	.48
Defending.....	0	105,592		.65	1000	.45	Delicious.....	0	105,592		.65	1000	.48
Defensible.....		100,000	.36	.65	1000	.45	Delight.....		100,000	.36	.65	1000	.48
Defensive.....		95,626	.348	.62	1000	.42	Delightful.....		95,626	.348	.62	1000	.45
Defer.....		87,321	.332	.6	1000	.38	Delineate.....		87,321	.332	.6	1000	.41
Deference.....	1	83,694		.57	1000	.35	Delinquent.....	1	83,694		.57	1000	.37 1/2
Deferring.....		74,686	.26	.52	1000	.33	Deliverance.....		74,686	.26	.52	1000	.35 1/2
Defiance.....		69,970	.29	.56	1000	.29	Delta.....		69,970	.20	.56	1000	.31 1/2
Deficient.....	2	66,373		.55	1000	.26	Delude.....	2	66,373		.55	1000	.28 1/2
Deficit.....		56,502	.27	.45	1000	.23	Deluded.....		56,502	.27	.45	1000	.25
Defied.....	3	52,634		.45	1000	.21	Deluding.....	3	52,634		.45	1000	.22 1/2
Defile.....	4	41,742		.4	1000	.18	Deluge.....	4	41,742		.4	1000	.20 1/4
Defilement.....		39,420	.232	.4	1000	.17	Delusion.....		39,420	.232	.4	1000	.18 1/2
Defiling.....		34,719	.216	.36	1000	.15	Demand.....		34,719	.216	.36	1000	.16
Definable.....	5	33,102		.36	1000	.14 1/4	Demanding.....	5	33,102		.36	1000	.15

FLEXIBLE OKONITE SWITCH CORDS, FOR ELECTRIC LIGHT SWITCH BOARDS AND ELEVATOR USE.

TRADE WORD.	PLAIN.							TRADE WORD.	BRAIDED.						
	Conduc- tivity of Wires.	Style of Conductor.		Outside Diameter.	Weight per Mile.	Insulation Resistance per Mile.	Price per foot.		Conduc- tivity of Wires.	Style of Conductor.		Outside Diameter.	Weight per Mile.	Insulation Resistance per Mile.	Price per foot.
		A. W. G.	No. of Strands							Sizes of Wires. B. W. G.	Inches.				
Demean.....	10	21	.....	.....	.....	1000	9	Demur.....	10	21	.....	.....	.....	1000	10½
Demeanor.....	8	21	22	.300	410	1000	9½	Demurrage.....	8	21	22	.300	410	1000	11
Demerit.....	8	25	23	.360	600	1000	13½	Demurring.....	8	25	23	.360	600	1000	16½
Demise.....	6	49	23	.360	765	1000	15½	Deniable.....	6	49	23	.360	765	1000	17
Democrat.....	6	77	26	.360	975	1000	16	Denial.....	6	77	26	.360	975	1000	18½
Demolish.....	5	43	22	.390	955	1000	18½	Denizen.....	5	43	22	.390	955	1000	20½
Demolition.....	5	43	22	.520	1420	1000	28	Denote.....	5	43	22	.520	1420	1000	29½
Demon.....	4	49	22	.410	920	1000	17¾	Denoting.....	4	49	22	.410	920	1000	20
Demonstrate.....	3	43	20	.480	1445	1000	25	Denounce.....	3	43	20	.480	1445	1000	30

Owing to the great pliability of Okonite Insulation we are enabled to produce the most flexible wire on the market, which can be subjected to the severest handling.

Okonite Tape, wrapped with Manson Tape, insures a perfect joint.

For Explanation of Trade Word see page 4.



OKONITE WIRE AND PRODUCTS.



OKONITE CABLES.

We are prepared to furnish, at short notice, cables of any desired size or number of conductors, for Telegraph, Telephone, Electric Light, or miscellaneous work, and for either Aerial, Subterranean, or Submarine use.

These cables are carefully made, on scientific principles, and covered with our patent Standard Covering, which, besides being waterproof, adds greatly to the tensile strength. For aerial work it has no superior, being light and easily handled.

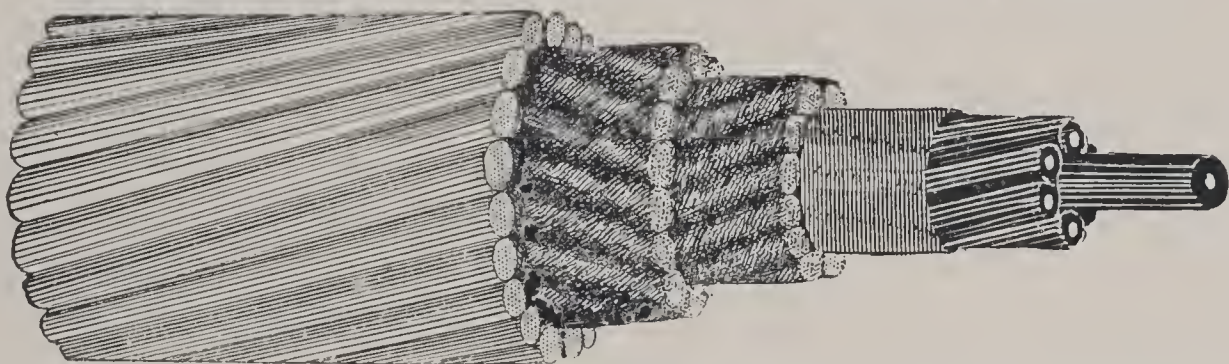
For underground work we use a heavier covering, known as Extra and Double Extra Standard Covering.

This style of cable has been used for several years, giving perfect satisfaction.

Besides the above we make for telephone use a cable composed of any number of wires twisted in pairs for metallic circuits.

Our Submarine Cables for telephone and telegraph use are made up of any desired number of conductors, with extra insulation, juted and armored. These cables we guarantee, and should be pleased to furnish estimates, for any desired number of conductors. Owing to the great difference in specifications for cables we can quote only upon receiving full information, which should also state quantity of cable required.

ARMORED OKONITE SUBMARINE TELEGRAPH CABLE.



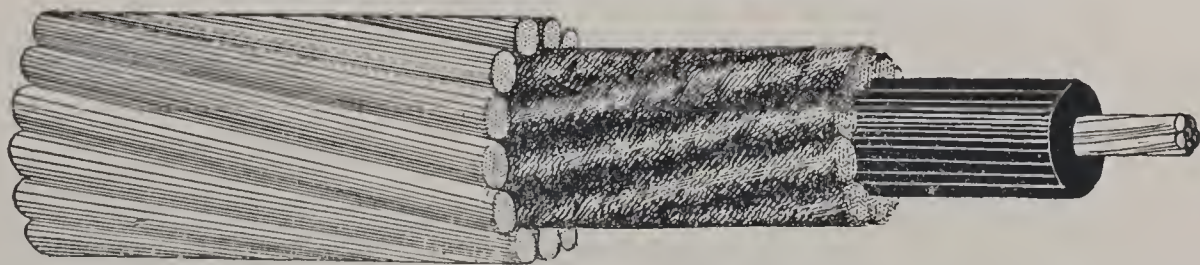
Composed of seven conductors, No. 16 B. W. G.; insulated to 9-32; wrapped with Standard Covering and two layers of jute, and armored with 21 No. 6 galvanized iron wires; insulation, over 3,000 megohms.

ARMORED OKONITE CABLES,  
For Submarine Use.

Trade Word.	Size of Conductor.	Style of Conductor.		Diameter of Insulation.	Weight per mile.	Insulation Resistance per Mile.	Style of Armoring.		Price per Foot.
		No. of Strands.	Size of Wire.				No. of Strands.	Size of Gal. Iron Wire.	
	A. W. G.			Inches.	Pounds.	Megohms.		W. & M. G.	Cts.
Dense .....	0000	19	12 B. W. G.	.980	23,240	15 0	20	4	\$1.50
Density.....	000	19	11 A. W. G.	.850	19,710	1500	18	4	1.25
Dent.....	00	12	12 B. W. G.	.800	18,080	1500	17	4	1.10
Dental.....	0	19	15 B. W. G.	.775	16,425	1500	16	4	1.00
Dented.....	1	19	16 B. W. G.	.675	12,640	1500	18	6	.87
Dentist.....	2	19	17 B. W. G.	.650	11,710	1500	17	6	.75
Denude.....	3	7	11 A. W. G.	.520	11,135	1500	16	6	.60
Denuded.....	4	7	14 B. W. G.	.460	10,165	1500	15	6	.55½
Denuding.....	5	7	15 B. W. G.	.425	9,375	1500	14	6	.49½
Deny .....	6	7	15 B. W. G.	.400	9,173	1500	14	6	.45

These cables are carefully made and the conductors covered with an extra insulation, and then juted before armoring, great care being taken during the process of manufacturing, thus enabling us to guarantee perfect satisfaction. Estimates furnished upon application for sizes not mentioned in above list. Reels charged at cost.

ARMORED OKONITE SUBMARINE CABLE.



Consisting of one conductor, No. 6 B. & S., composed of 7 No. 16 B. W. G. wires, insulated to 4-10, juted and armored with 14 No. 6 galvanized iron wires; insulation, over 1,000 megohms.

Use Okonite Tape for Submarine Joints.

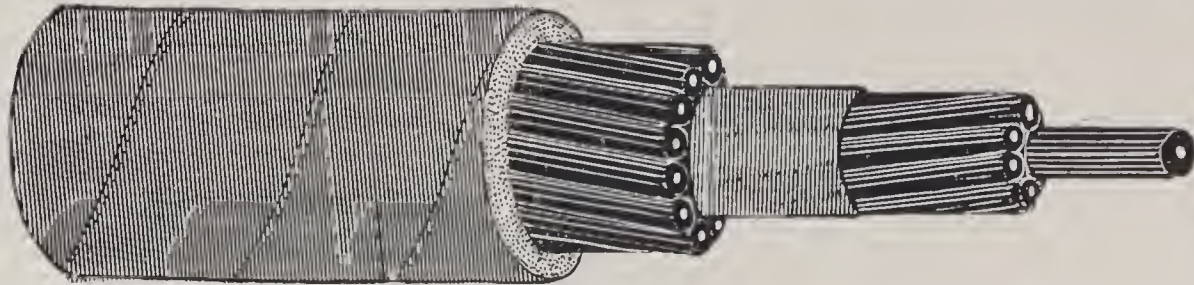
For Explanation of Trade Word see page 4.



## OKONITE WIRE AND PRODUCTS.



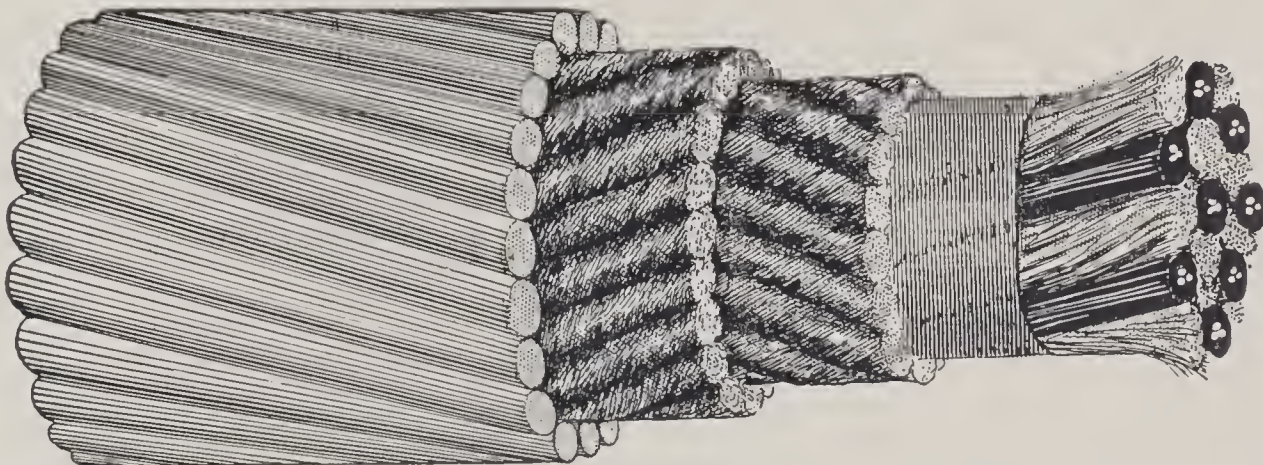
### Okonite Aerial or Underground Telegraph Cable.



Nineteen Conductors, No. 16 B. W. G.; insulated to  $\frac{6}{32}$ ; covered with extra standard covering; insulation over 2,000 megohms.

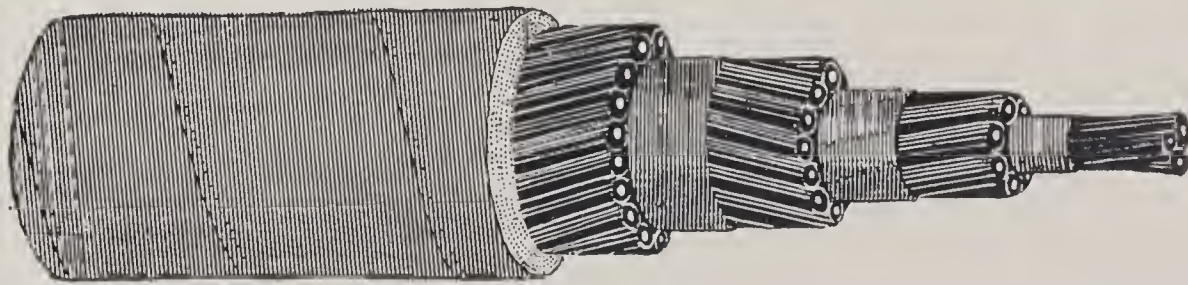
### Armored Okonite Submarine Telephone Cable.

TWISTED IN PAIRS.

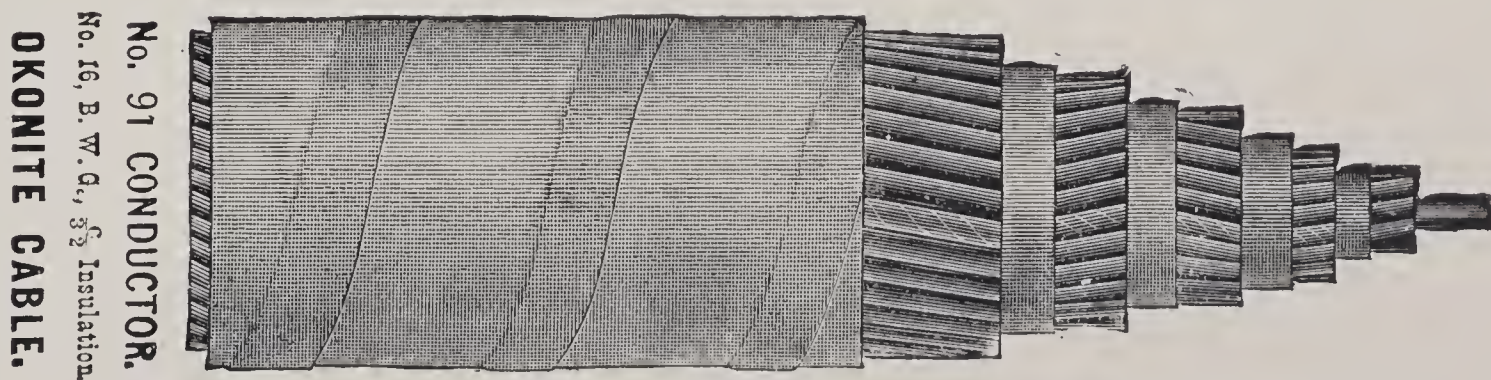


Consisting of Eight Conductors, each composed of 3x18 B. W. G. Wires; insulated to  $\frac{9}{32}$ ; armored with 23 No. 4 Galvanized Iron Wires; insulation over 3,000 megohms.

### Okonite Aerial or Underground Telephone Cable.



Fifty Conductors, No. 18 B. W. G.; insulated to  $\frac{4}{32}$ ; covered with Extra Standard Covering; insulation over 600 megohms.



OKONITE CABLE.  
No. 16, B. W. G.,  $\frac{6}{32}$  Insulation.  
No. 91 CONDUCTOR.

Use Okonite Tape with Submarine, Aerial and Underground Cables.



OKONITE WIRE AND PRODUCTS.



DOUBLE CONDUCTOR CABLES.

Consisting of two Okonite Wires laid parallel and braided together.

AMERICAN OR BROWN & SHARPE'S GAUGE.

Trade Word.	Gauge No. B. & S.	Weight per mile. Pounds.	Insulation Resistance per mile. Megohms.	Price per foot.
Denying.	10	580	1000	\$0.13 $\frac{1}{4}$
Deodorize.	12	380	1000	.10
Depart.	14	280	1000	.07 $\frac{3}{4}$
Departed.	16	190	1000	.06
Departing.	18	140	1000	.05 $\frac{1}{2}$
Department.	20	120	1000	.05

Any other sizes or number of conductors made to order.

OKONITE LAMP CORDS.

These cords consist of fine wires laid together, covered with Okonite and braided. They are made in any color desired. All Okonite Lamp Cord is tested after three days' continuous immersion in water, and is absolutely waterproof. We carry all sizes in Lamp Cord, both twisted and parallel, covered with the regular stout black linen braid at the same prices as the ordinary cotton.

OKONITE SILK LAMP CORD.

Twisted Conductor.



BRAIDED OKONITE LAMP CORD.

Double Conductor, Twisted or Braided Parallel.

Silk Trade Word.	Size of Conductor.	Insulation.	Style of Conductor.		Insulation Resistance per mile.	Price per foot.	Cotton Trade Word.
	A. W. G.	A. W. G.	No. of Strands.	Size of Wire.	Megohms.	Cts.	
Departure.	22	12	7	30 A. W. G.	1000	4½	Deplete.
Depend.	20	12	10	30 “	1000	5	Depletion.
Depended.	18	10	11	30 B. W. G.	1000	7	Deplorable.
Dependence	16	8	18	30 “	1000	10	Deplore.
Depending.	14	7	28	30 “	1000	12¼	Deploring.
Depict.	12	6	26	26 A. W. G.	1000	15	Deploy.
Depicted.	10	4	42	26 “	1000	24	Deponent.

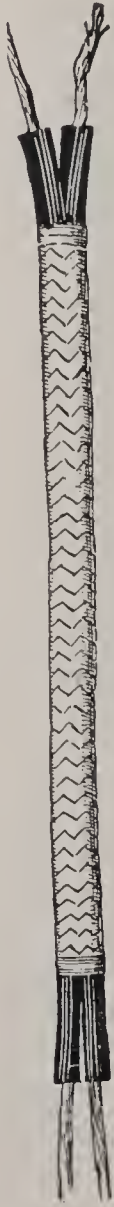
Parallel Conductor.

No. 12 A. W. G. (26x26 A. W. G stranded); insulation resistance in water, 1,000 megohms.



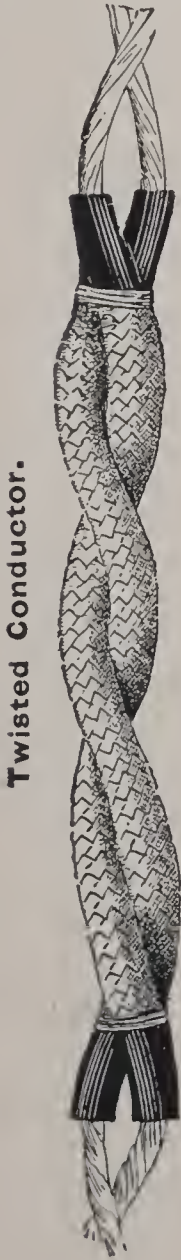
We are prepared to furnish flexible wires in small sizes, as above, with the regular Okonite insulation, and will quote prices upon application. Use Manson Tape for insulating fixtures.

For Explanation of Trade Word see page 4.



No. 20 A. W. G. (10x30 A. W. G. stranded); insulation resistance in water, 1,000 megohms.

Parallel Conductor.



Twisted Conductor.



OKONITE WIRE AND PRODUCTS.



TAPED ELECTROLIER WIRE.

Single or Double Conductors.



OKONITE INSULATION.

SINGLE CONDUCTOR.				DOUBLE CONDUCTOR.			
Trade Word.	B. & S. Gauge.		Price.	Trade Word.	B. & S. Gauge.		Price.
Depose.	18.....	per foot,	\$0.02 <sup>5</sup> / <sub>8</sub>	Depot.	18.....	per foot,	\$0.03 <sup>3</sup> / <sub>4</sub>
Deposed.	16.....	"	.03	Deprave.	16.....	"	.05 <sup>3</sup> / <sub>4</sub>
Deposing.	14.....	"	.03 <sup>3</sup> / <sub>4</sub>	Depravity.	14.....	"	.06 <sup>3</sup> / <sub>4</sub>
Deposit.	12.....	"	.05 <sup>1</sup> / <sub>2</sub>	Deprecate.	12.....	"	.08 <sup>1</sup> / <sub>2</sub>

The two wires comprising the double conductor electrolier wire are easily separated by simply removing a portion of the tape, and, if used with Okonite Tape, make the safest and most reliable fixture work.



BLACK OKONITE TUBING.

Endorsed by all Insurance Underwriters.

We are now prepared to furnish a soft, reliable Tubing, in any size, made from our regular Okonite Compound, which will not harden or deteriorate when exposed to the weather, and has all the good properties of hard rubber, with the additional advantage of its flexibility.

This Tubing meets requirements in which the ordinary soft rubber Tubing is useless, as it withstands varying changes of temperature and does not deteriorate or crack.

Trade Word.	Inside Measurement.	Approximate No. of feet per Pound.	Price per Pound.	Trade Word.	Inside Measurement.	Approximate No. of feet per Pound.	Price per Pound.
Depress .....	$\frac{1}{8}$ inch.	35 feet	\$1.50	Depth.....	$\frac{1}{2}$ inch.	9 feet	\$1.50
Depressing.....	$\frac{3}{16}$ "	25 "	1.50	Depute.....	$\frac{5}{8}$ "	8 "	1.50
Depression.....	$\frac{1}{4}$ "	17 "	1.50	Deputing.....	$\frac{3}{4}$ "	5 $\frac{1}{2}$ "	1.50
Deprive .....	$\frac{5}{16}$ "	12 $\frac{1}{2}$ "	1.50	Deputy.....	$\frac{7}{8}$ "	4 $\frac{1}{2}$ "	1.50
Depriving .....	$\frac{3}{8}$ "	11 $\frac{1}{2}$ "	1.50				

For Explanation of Trade Word see page 4.



OKONITE WIRE AND PRODUCTS.

OKONITE TAPE.



After several years' use, Okonite Tape stands without a competitor. It has proved all we claimed for it, being thoroughly waterproof and a perfect insulating medium. It is not injured by exposure to weather, does not deteriorate when submitted to extreme changes in temperature, and is not affected by commercial acids or alkalies. We make it in any width desired, but keep the 1/2 and 3/4 inch widths constantly in stock.

Trade Word.	Width.		Price.
Assassin.	1/2 inch,	} per pound.....	\$1.50
Assassinate.	3/4 "		

THE MANSON TAPE.

FOR PROTECTING INSULATED WIRE JOINTS, AND FOR THE BETTER PROTECTION OF INSULATED WIRES FROM ABRASION.

We would respectfully call the attention of consumers and the trade generally to the tape we have upon the market under the above name. This tape is made of heavy cloth, the fabric being cut straight, not diagonally, first saturated with a preparation of itself a first-class insulator, and which adds greatly to its lasting qualities. A compound is then applied, of a nature that allows one layer to adhere closely to another in such a manner that it will not unwrap, even when exposed to the weather. It is made both black and white, and in ordering, be sure to state which is desired.

WE CLAIM :

- That it is the best cloth tape in the market.
- That it will not oxidize the wire.
- That it has no superior, and the price is as low as many inferior tapes now being sold in the market.

We make special widths to order, but carry the 3/4, 1, 1 1/4, 1 1/2 and 2 inch widths always in stock. The 3/4 inch comes in 1/2 lb. rolls, all others in about 1 lb.

WHITE.			BLACK.		
Trade Word.	Width.	Price.	Trade Word.	Width.	Price.
Derange.	3/4 inch.....	per lb., \$0.75	Derision.	3/4 inch.....	per lb., \$0.75
Deranged.	1 "	..... "	Derivation.	1 "	..... "
Derangement.	1 1/4 "	..... "	Derive.	1 1/4 "	..... "
Deride.	1 1/2 "	..... "	Derogation.	1 1/2 "	..... "
Deriding.	2 "	..... "	Derogatory.	2 "	..... "

For Aerial Line Work, use Manson Tape.

For Explanation of Trade Word see page 4.



**WIRE.****GENERAL WESTERN AGENTS FOR IMPROVED CANDEE WEATHERPROOF WIRE.**

Since this Wire was placed upon the market, about three years ago, it has grown steadily in favor, and now stands at the head of its class. The method of manufacture has also been very materially improved, so that what we now offer as Improved Candee is a very much superior article to that sold a short time since. This insulation has been subjected to the severest tests in all latitudes, and has never in a single instance failed to support our representations of its quality. We have, in our office, samples of Improved Candee Wire cut from lines in Texas, Colorado, New York, Illinois, Minnesota and California, that had been erected from twelve to eighteen months, and these samples show absolutely no deterioration in the insulation.

We do not claim this insulation to be thoroughly waterproof, nor recommend its use in places exposed at all times to dampness, but for outside work, such as Electric Light, Street Railway, Telephone, Police, Fire Alarm and Messenger Companies' lines, or for running through foliage, there is nothing better.

Improved Candee is a product of the Okonite Company's factory, and we place it before the public, knowing that the wide reputation and standing which all the Okonite products have acquired is fully maintained in the superior insulation of this brand.

Weatherproof insulation generally consists of one, two and three cotton braidings, soaked in some insulating compound which is supposed to permeate the pores of the fabric and render it weatherproof.

Improved Candee Wire is first carefully tinned, then covered with a layer of strong Okonite waterproof tape, laid on spirally and overlapping and all then covered with a heavy braiding. This braid has the same insulating properties as that employed on the ordinary weatherproof wires, but is used on the Improved Candee, simply to protect the real insulation against abrasion and other mechanical injury. This wire is also very popular with construction men, as the insulation contains nothing of a tarry nature. It is easily handled, and because of its uniform quality and gauge, makes a line of workmanlike and satisfactory appearance.

The Okonite factory having been increased to five times the capacity of the old mill, enables us to contract and make prompt deliveries for the insulated wire necessary for the complete installation of Electric Light, Power and Street Railway Plants. We carry on hand in our Chicago warehouse a complete stock of all sizes of the Improved Candee, from Nos. 00-18, and can make shipments the same day orders are received.

As the Improved Candee is but a little higher in price than the inferior weatherproof wires, all companies desiring serviceable lines can well afford to inquire into its merits and price before using cheap imitations.

**Prices and samples submitted upon application.**



WIRE.



COPPER WIRES FOR ELECTRIC LIGHT, STREET RAILWAY, MINING WORK, Etc.

IMPROVED CANDEE WEATHERPROOF WIRE.

TRADE WORD.	Size of Wire.	Style of Conductor.		Weight per Mile.	Price per Mile.
	A. W. G.	No. of Strands.	Size of Wires.	Pounds.	Dollars.
Descant.....	C000	19	12 B. W. G.	4,320	1,815.00
Descend.....	000	19	11 A. W. G.	4,000	1,420.00
Descended.....	00	1	Solid.	2,478	1,040.00
Descending.....	0	1	“	1,987	835.00
Describe.....	1	1	“	1,585	690.00
Describing.....	2	1	“	1,286	560.00
Description.....	3	1	“	1,047	445.00
Descry.....	4	1	“	845	340.00
Desecrate.....	5	1	“	665	295.00
Desert.....	6	1	“	570	235.00
Deserter.....	7	1	“	450	195.00
Desertion.....	8	1	“	410	175.00
Deserve.....	10	1	“	293	130.00
Deserving.....	12	1	“	200	90.00
Design.....	14	1	“	138	70.00
Designate.....	16	1	“	100	50.00
Designation.....	18	1	“	70	50.00

We carry on hand in our Chicago warehouse a complete stock of all sizes of Improved Candee, from Nos. 00-18, and can make shipments the day orders are received. Nos. 0000 and 000 are shipped from factory and are made of stranded wires. Any of the above sizes, up to and including No. 6, will be furnished with stranded wires at an advance of 10 per cent. on the net price.

IMPROVED CANDEE TELEPHONE AND TELEGRAPH WIRES.

These wires can be furnished in either Hard Drawn or Soft Copper.

TRADE WORD.	Size of Wire, Birmingham Gauges.	Weight per Mile.	Price per Mile.
	B. W. G.	Pounds.	Dollars.
Designed.....	10	408	175.00
Designing.....	12	293	130.00
Desirable.....	14	200	90.00
Desire.....	16	138	70.00
Desiring.....	18	97	50.00

IMPROVED CANDEE GALVANIZED IRON WIRES.

TRADE WORD.	Size of Wire, W. & M. Gauges.	Weight per Mile.	Price per Mile.
	W. & M. G.	Pounds.	Dollars.
Desirous.....	9	460	105.00
Desist.....	12	268	70.00
Desistance.....	14	185	60.00

Use Okonite Tape for making waterproof joints.

Use Manson Tape to prevent abrasion.

For Explanation of Trade Word see page 4.



WIRE.



SPECIAL IMPROVED CANDEE WEATHER-PROOF WIRES.

FOR ELECTRIC LIGHT, STREET RAILWAY, MINING WORK, ETC.

The above is also a product of the Okonite Company, and is the same in every way as the Improved Candee excepting that it has TWO heavy layers of Okonite Waterproof Insulating Tape wound spirally one over the other and then heavily braided. For superior line construction it is only excelled by Okonite.

PRICE LIST.

TRADE WORD.	Size of Wire (American Gauge).	Style of Conductor.		Price per Mile.
	A. W. G.	No. of Strands.	Size of Wire.	
Desk.....	0000	19	12 B. W. G.	\$2000.00
Desolate.....	000	19	11 A. W. G.	1530.00
Desolated.....	00	12	12 B. W. G.	1386.00
Desolating.....	00	1	Solid.	1208 00
Desolation.....	0	19	15 B. W. G.	1094.00
Despair.....	0	1	Solid.	1032.00
Despatch.....	1	1	Solid.	844.00
Desperate.....	1	19	16 B. W. G.	908.00
Desperation.....	2	1	Solid.	664.00
Despicable.....	2	19	17 B. W. G.	750.00
Despise.....	3	1	Solid.	544.00
Despite.....	3	7	11 A. W. G.	630.00
Despoil.....	4	1	Solid.	450.00
Despoiler.....	4	7	14 B. W. G.	534.00
Despond.....	5	1	Solid.	370.00
Despondent.....	5	7	15 B. W. G.	412.00
Desponding.....	6	1	Solid.	320.00
Despot.....	6	7	16 B. W. G.	366.00

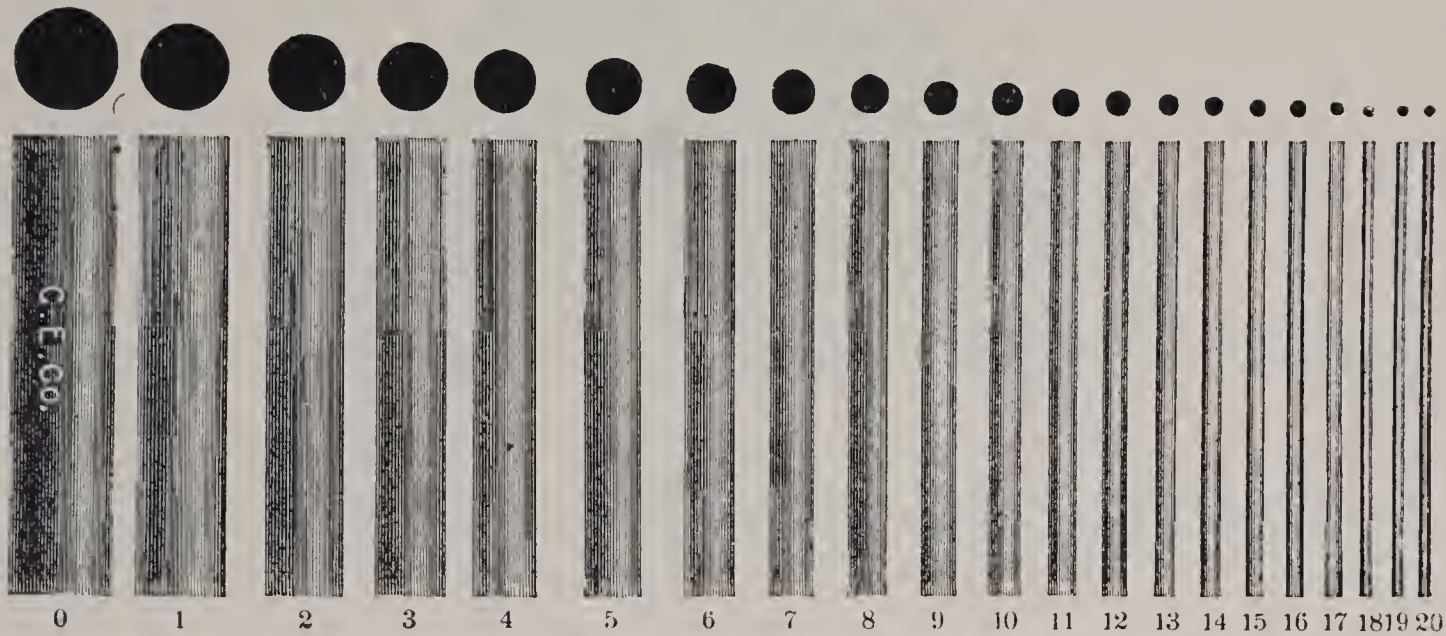
Perfect joints can be secured by using Okonite Tape for waterproofing and Manson Tape to prevent abrasion.

For Explanation of Trade Word see page 4.



WIRE.  
BARE COPPER WIRE.

HARD AND SOFT DRAWN ELECTRIC COPPER WIRE.



These cuts represent exact sizes by Brown & Sharpe's Gauge.

We are in a position to quote attractive prices on Hard, Soft and Tinned Bare Copper Wire, which, on account of uniformity of gauge, great tensile strength and high conductivity, we can thoroughly recommend. Owing to the fluctuations in the market, we quote special prices upon application. By means of electrical appliances, we can produce bare wire in any length without joints. For full tables of weights, etc., of wires, see back of book.

COPPER WIRE,  
Hard or Soft Drawn.

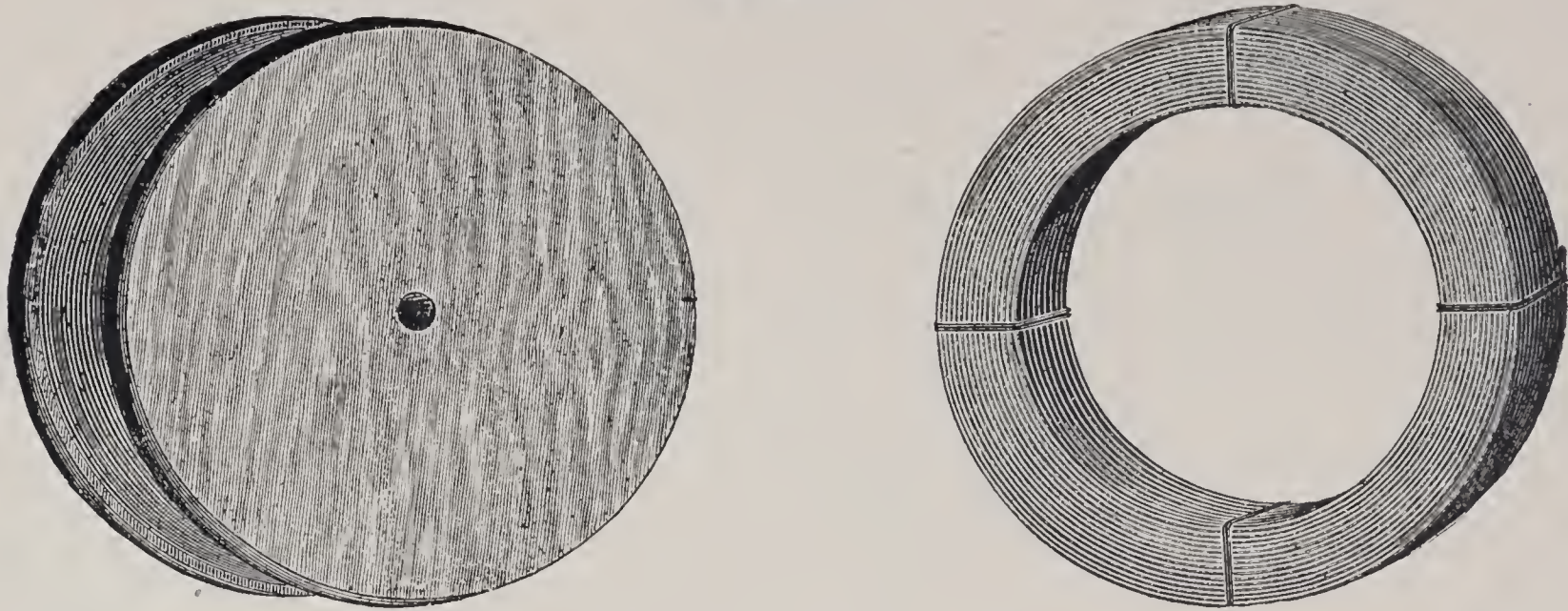
Trade Word.	Gauge No. B. & S.	Diameter by 1000ths.	Sect. Area in Circular Mils.	Feet		Lbs. per 1,000 Feet.	Price per Pound.
				Per lb.	Per Ohm.		
Despotic.....	0000	.46	211650.	1.56122	20497.7	640.51	\$0.30
Despotism.....	000	.40964	167805.	1.9687	16255.27	507.95	.30
Destination.....	00	.3648	133079.	2.4824	12891.37	402.83	.30
Destine.....	0	.32486	105534.	3.1303	10223.08	319.45	.30
Destiny.....	1	.2893	83694.	3.94714	8107.49	253.34	.30
Destitution.....	2	.25763	66373.	4.97722	6429.58	200.91	.30
Destroy.....	3	.22942	52634.	6.2765	5098.61	159.32	.30
Destroying.....	4	.20431	41743.	7.9141	4043.6	126.35	.30
Destructible.....	5	.18194	33102.	9.97983	3206.61	100.20	.30
Destructive.....	6	.16202	26251.	12.5847	2542.89	79.462	.30
Desultory.....	7	.14428	20817.	15.8696	2015.51	63.013	.30
Detach.....	8	.12849	16510.	20.0097	1599.3	49.976	.30
Detached.....	9	.11443	13094.	25.229	1268.44	39.636	.32
Detaching.....	10	.10189	10382.	31.8212	1055.66	31.426	.32
Detachment.....	11	.090742	8234.	40.1202	797.649	24.924	.32
Detail.....	12	.080808	6530.	50.5906	632.555	19.766	.32
Detain.....	13	.071961	5178.	63.7948	501.63	15.674	.34
Detained.....	14	.064084	4107.	80.4415	397.822	12.435	.34
Detect.....	15	.057068	3257.	101.4365	315.482	9.859	.34
Detected.....	16	.05082	2583.	127.12	250.184	7.819	.34
Detection.....	17	.045257	2048.	161.29	198.409	6.199	.36
Detecting.....	18	.040303	1624.	203.374	157.35	4.916	.36
Detective.....	19	.03589	1288.	256.468	124.777	3.899	.36
Detention.....	20	.031961	1021.	323.399	98.9533	3.094	.36
Deter.....	21	.028462	810.	407.815	78.473	2.452	.38
Detergent.....	22	.025347	642.	514.193	62.236	1.945	.38
Determine.....	23	.022571	509.	648.452	49.3504	1.542	.40
Determined.....	24	.0201	404.	817.688	39.1365	1.223	.47
Determining.....	25	.0179	320.	1031.038	31.0381	.9699	.47
Deterred.....	26	.01594	254.	1300.180	24.6131	.7692	
Detests.....	27	.014195	201.	1639.49	19.5191	.6099	
Detestable.....	28	.012641	159.8	2067.364	15.4793	.4837	
Detestation.....	29	.011257	126.7	2606.959	12.2854	.3835	
Dethrone.....	30	.010025	100.5	3287.084	9.7355	.3002	
Dethroned.....	31	.008928	79.7	4414.49	7.72143	.2413	
Detonate.....	32	.00795	63.	5226.915	6.12243	.1913	
Detonating.....	33	.00708	50.1	6590.41	4.85575	.1517	
Detract.....	34	.006304	39.74	8312.8	3.84966	.1204	
Detractor.....	35	.005614	31.5	10481.77	3.05305	.0956	
Detriment.....	36	.005	25.	13214.16	2.4217	.0757	
Detrimental.....	37	.004453	19.8	16659.97	1.92086	.06003	
Devastate.....	38	.003965	15.72	21013.25	1.52292	.04758	
Devastating.....	39	.003531	12.47	26496.237	1.20777	.03755	
Devastation.....	40	.003144	9.88	33420.63	0.97984	.02992	

Tinned Copper, special prices.  
In ordering, use word "Hard" or "Soft" after trade word to designate which grade of wire is wanted.

For Explanation of Trade Word see page 4.



WIRE.



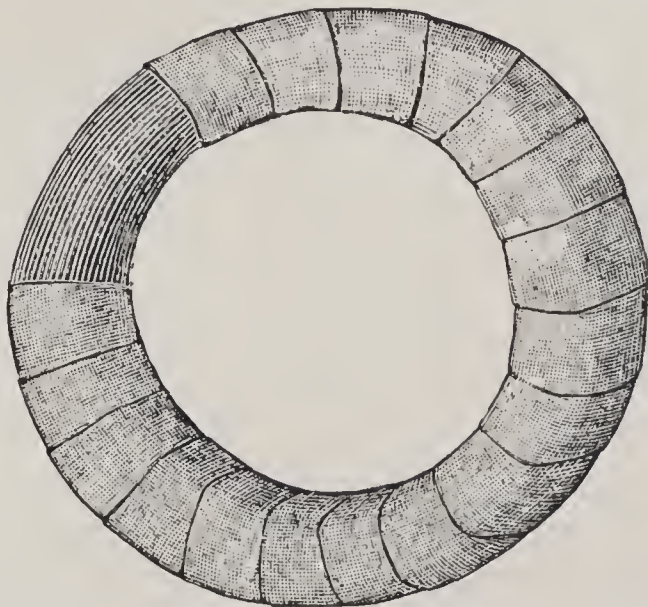
UNDERWRITERS' LINE WIRE.  
DOUBLE BRAIDED—WHITE OR BLACK.

TRADE WORD.	Gauge No. B. & S.	Approximate Weight per Mile.	Price.	TRADE WORD.	Gauge No. B. & S.	Approximate Weight per Mile.	Price.
Develop .....	0000	4,300	\$0.32	Devise.....	7	440	\$0.30
Developed.....	000	3,200	.32	Devised.....	8	373	.30
Developing.....	00	2,225	.32	Devoid.....	9	290	.31
Development.....	0	1,880	.32	Devolve.....	10	251	.32
Deviate.....	1	1,580	.31	Devote.....	12	190	.32
Deviating.....	2	1,285	.30	Devoted.....	14	130	.34
Deviation.....	3	1,075	.30	Devotion.....	16	98	.36
Device.....	4	885	.30	Devour.....	18	70	.38
Devious.....	5	625	.30	Devouring.....	20	60	.40
Devisable.....	6	525	.30				

If Black Wire is wanted, use word "Black" after Trade Word. Where Trade Word is used alone, it will be understood that White Underwriters' Wire is wanted.

Our chief claims for superiority in our Underwriters' Wire are based upon its high insulating properties, its durability, the absence of paraffine, strength of insulation and absolute fireproof qualities. We carry a large stock on hand of all sizes in both black and white, and owing to the constant fluctuations in the market quote special prices upon application.

BLACK WEATHERPROOF WIRE.



DOUBLE BRAIDED AND COMPOUNDED. Highly Finished.

TRADE WORD.	Gauge No. B. & S.	Approximate Pounds per 1,000 feet.	Price per Pound	TRADE WORD.	Gauge No. B. & S.	Approximate Pounds per 1,000 feet.	Price per Pound.
Devout .....	0000	753.57	\$0.59	Diagram.....	6	101.75	\$0.59
Devoutly .....	000	603.42	.59	Dial.....	7	83.82	.59
Dew.....	00	483.01	.59	Dialect.....	8	69.45	.59
Dewy.....	0	385.11	.59	Dialogue.....	10	48.71	.61 <sup>3</sup> / <sub>4</sub>
Dexter.....	1	307.67	.59	Diameter.....	12	34.77	.64 <sup>1</sup> / <sub>2</sub>
Dexterity.....	2	245.88	.59	Diamond.....	14	24.15	.68 <sup>1</sup> / <sub>4</sub>
Dexterous.....	3	196.52	.59	Diary.....	16	16.98	.70 <sup>3</sup> / <sub>4</sub>
Diadem.....	4	152.24	.59	Diatribes.....	18	11.48	.76
Diagonal.....	5	123.94	.59				

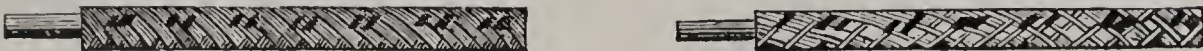
This wire is recommended for use where reliable line construction is desired, and where a compact, strong and well insulated wire is the essential feature.

Use Manson Tape for protecting joints from abrasion.

For Explanation of Trade Word see page 4.



WIRE.  
OFFICE WIRE.



Double Braided, Waxed, Paraffined and Highly Finished. In Coils of about Thirty Pounds. Made in Assorted Colors. Single and Duplex.

SINGLE.

Trade Word.	Gauge No. B. & S.	Approximate No. feet per Pound.		Price.
Dice.....	12	35	per pound,	\$0.35
Dickey.....	14	52	"	.35
Dictate.....	16	90	"	.35
Dictation.....	18	132	"	.35

DUPLEX.

Trade Word.	Gauge No. B. & S.	Approximate No. feet per Pound.		Price.
Dictator.....	12	26	per pound,	\$0.35
Diction.....	14	32	"	.35
Dictionary.....	16	55	"	.35
Didactic.....	18	80	"	.35

ANNUNCIATOR WIRE.



Double Cotton Wrapped, Waxed, Paraffined, and Wound on Spools. Made in Assorted Colors and of Soft, Pure Copper.

Trade Word.	Gauge No. B. & S.	Approximate No. feet per Pound.		Price.
Diet.....	14	70	per pound,	\$0.34
Dietary.....	16	105	"	.34
Differ.....	18	155	"	.34
Differed.....	20	230	"	.37
Difference.....	22		"	.45
Differing.....	24		"	.50

CAS FIXTURE WIRE.

For Lighting Gas by Electricity.

This Wire is evenly and compactly wound with three layers of cotton, or silk, as the case may be, and is highly finished. Colors assorted about as follows: yellow, old gold, white and brown.

COTTON.

Trade Word.	Gauge No. B. & S.		Price.
Difficult.....	22	per pound,	\$1.50
Difficulty.....	24	"	1.75

SILK.

Trade Word.	Gauge No. B. & S.		Price.
Diffidence.....	22	per pound,	\$3.00
Diffident.....	24	"	3.50

For Explanation of Trade Word see page 4.



WIRE.

MAGNET WIRES.

We are prepared to quote very low prices on large quantities.

Our Silk-covered and Cotton-covered Magnet Wires are of extraordinary quality in the following respects: Purity, high conductivity and softness of the copper, all of which is carefully tested and selected before covering; fine and perfectly regular covering, by which is secured the highest insulation that can be obtained with silk or cotton. The great importance of a perfectly regular covering, which is of the least possible thickness, and at the same time an absolute insulation, cannot be too highly estimated. The Single and Double Cotton Covered Magnet Wires from 0000 to No. 19 inclusive are what is generally used for field and armature work.

COPPER MAGNET WIRES. Price per Pound.

SIZE OF WIRE B. & S. GAUGE.	Single Covered.		Double Covered.	
	Cotton.	Silk.	Cotton.	Silk.
0000 to 0	\$0.50	.....	\$0.53	.....
1 to 4	.47	.....	.51	.....
5 and 6	.50	.....	.53	.....
7 and 8	.51	.....	.54	.....
9 and 10	.53	.....	.55	.....
11 and 12	.54	.....	.57	.....
13 and 14	.55	.....	.60	.....
15	.57	.....	.77	.....
16	.57	\$1.12	.77	\$1.53
17	.59	1.12	.65	1.53
18	.59	1.15	.65	1.57
19	.60	1.15	.67	1.57
20	.60	1.18	.75	1.61
21	.70	1.20	.88	1.63
22	.76	1.30	.95	1.76
23	.83	1.42	1.05	1.93
24	.90	1.56	1.14	2.13
25	1.00	1.81	1.27	2.48
26	1.10	2.10	1.38	2.88
27	1.25	2.25	1.57	3.07
28	1.35	2.38	1.69	3.23
29	1.50	2.75	1.89	3.76
30	1.65	2.95	2.07	4.02
31	1.80	3.25	2.23	4.40
32	1.95	3.45	2.28	4.53
33	2.40	3.90	2.85	5.10
34	2.85	4.10	3.42	5.30
35	3.25	5.85	3.88	7.78
36	4.37	7.00	4.93	8.88
37	6.75	11.00	7.25	13.63
38	9.00	13.00	9.50	14.50
39	11.00	15.00	12.00	18.00
40	13.00	20.00	15.00	23.00

The sizes from No. 19 to 40, inclusive, are mostly used for the winding of magnets, instruments, etc., and are made in two colors, green or white. They come on small spools, and in less than pound lots special prices will be charged.

In ordering Magnet Wires please use gauge numbers, and be careful to state whether single or double covered and cotton or silk insulation is needed.



WIRE.

GERMAN SILVER RESISTANCE WIRE.

Used for resistance coils, rheostats and parts of apparatus where high resistance is required. It possesses great permanence, and changes in temperature but slightly alter its resistance.

SIZE OF WIRE, B. & S. GAUGE.	PRICE PER POUND.				
	Single Covered.		Double Covered.		Bare.
	Cotton.	Silk.	Cotton.	Silk.	
0000 to 0	.....	.....	.....	.....	.....
1 to 4	.....	.....	.....	.....	\$0.65
5 and 6	.....	.....	.....	.....	.65
7 " 8	.....	.....	.....	.....	.65
9 " 10	.....	.....	.....	.....	.65
11 " 12	.....	.....	.....	.....	.65
13 " 14	.....	.....	.....	.....	.65
15	.....	.....	.....	.....	.67
16	\$1.40	\$1.85	\$1.70	\$2.38	.67
17	1.40	1.85	1.70	2.38	.68
18	1.40	1.85	1.70	2.38	.69
19	1.40	1.85	1.70	2.38	.69
20	1.42	1.88	1.74	2.43	.79
21	1.44	1.93	1.75	2.48	.82
22	1.52	2.06	1.83	2.64	.90
23	1.62	2.21	1.98	2.87	.90
24	1.71	2.37	2.09	3.08	.95
25	1.84	2.65	2.26	3.48	1.00
26	2.05	3.02	2.48	3.93	1.20
27	2.25	3.23	2.73	4.20	1.30
28	2.45	3.42	2.98	4.43	1.40
29	2.60	3.85	3.13	5.00	1.55
30	2.84	4.14	3.38	5.33	1.75
31	3.09	4.52	3.66	5.81	1.95
32	3.59	4.94	4.21	6.23	2.35
33	3.96	5.46	4.64	6.89	2.60
34	4.61	5.84	5.44	7.29	2.95
35	5.01	7.52	5.69	9.45	3.65
36	8.09	10.00	8.88	11.75	6.50
37	13.00	18.50	13.75	22.00	11.50
38	24.00	28.00	27.00	33.00	18.00
39	27.00	30.00	30.00	40.00	25.00
40	30.00	45.00	33.00	50.00	30.00

In ordering German Silver Resistance Wire, please use gauge numbers and say whether cotton or silk insulation or bare wire is wanted, also whether it is to be single or double covered.

SPRING BRASS WIRE.

Largely used for binding wires on armatures. The Nos. 0 to 20 come in bundles of about 35 lbs. each. Nos. 20 and upwards come in bundles of about 25 lbs. each.  
An increased price is charged when less than a full bundle is ordered.

B. & S. GAUGE.					
Trade Word.	Gauge.	Price.	Trade Word.	Gauge.	Price.
Diffract.	0.....	per lb., \$0.24	Dignitary.	13.....	per lb., \$0.24
Diffuse.	1.....	“ .24	Dignity.	14.....	“ .24
Diffused.	2.....	“ .24	Digress.	15.....	“ .24
Diffusing.	3.....	“ .24	Digressive.	16.....	“ .24
Diffusion.	4.....	“ .24	Digression.	17.....	“ .25
Diffusive.	5.....	“ .24	Dilate.	18.....	“ .25
Digest.	6.....	“ .24	Dilating.	19.....	“ .26
Digestible.	7.....	“ .24	Dilation.	20.....	“ .26
Digestion.	8.....	“ .24	Dilatory.	21.....	“ .27
Digit.	9.....	“ .24	Dilemma.	22.....	“ .28
Digital.	10.....	“ .24	Diligence.	23.....	“ .30
Dignified.	11.....	“ .24	Diligent.	24.....	“ .32
Dignify.	12.....	“ .24	Dilute.	25.....	“ .34
LONDON GAUGE.					
Trade Word.	Gauge.	Price.	Trade Word.	Gauge.	Price.
Diluted.	26.....	per lb., \$0.37	Dimension.	28.....	per lb., \$0.44
Diluting.	27.....	“ .40	Diminish.	29.....	“ .47

For Explanation of Trade Word see page 4.



WIRE.

PHOSPHOR BRONZE WIRE—In Coils.

THESE LARGE SIZES BY B. & S. GAUGE.

No.	1 to 16	Annealed, Hard or Spring Wire	per lb., \$0.70
"	17 and 18	" " " " " "	.72
"	19 " 20	" " " " " "	.76
"	21	" " " " " "	.76
"	22	" " " " " "	.76
"	23	" " " " " "	.80
"	24	" " " " " "	.85
"	25	" " " " " "	.85

The fine sizes are largely used for binding wires in Armature work.

THESE SMALL SIZES BY LONDON GAUGE.

No.	26	Annealed, Hard or Spring Wire	per lb., \$0.90
"	27	" " " " " "	.90
"	28	" " " " " "	1.00
"	29	" " " " " "	1.00
"	30	" " " " " "	1.10
"	31	" " " " " "	1.10
"	32	" " " " " "	1.20
"	33	" " " " " "	1.20
"	34	" " " " " "	1.60
"	35	" " " " " "	1.60
"	36	" " " " " "	1.80

In ordering Phosphor Bronze Wire please use gauge numbers, and state whether hard, soft or spring wire is wanted.

PHOSPHOR-BRONZE TELEGRAPH AND TELEPHONE WIRES.

USUAL TELEGRAPH SIZES.

TRADE WORD.	No. by B. & S. Gauge.	Diameter.	APPROXIMATE		Price per Pound.
			Pounds per Mile.	Resistance per Mile	
Dimity.....	6	.203 in.	658	5.4 ohms.	\$0.75
Dimly.....	8	.165 "	435	8.3 "	.75
Dimmed.....	9	.148 "	350	10.3 "	.75
Dimness.....	10	.134 "	287	12.6 "	.75
Dimple.....	11	.120 "	230	15.7 "	.75
Din.....	12	.109 "	190	18.9 "	.75
Dined.....	13	.095 "	144	25. "	.75

USUAL TELEPHONE SIZES.

TRADE WORD.	No. by Stubs' Gauge.	Diameter.	APPROXIMATE		Price per Pound.
			Pounds per Mile.	Resistance per Mile.	
Dingle.....	14	.083 in.	110	33 ohms.	\$0.75
Dingy.....	15	.072 "	83	44 "	.75
Dining.....	16	.065 "	67	50 "	.75
Dinner.....	17	.058 "	52	68 "	.76
Dint.....	18	.049 "	39	90 "	.77
Diocese.....	19	.042 "	29	124 "	.80
Dip.....	20	.035 "	20	190 "	.90

PLATINUM WIRE.

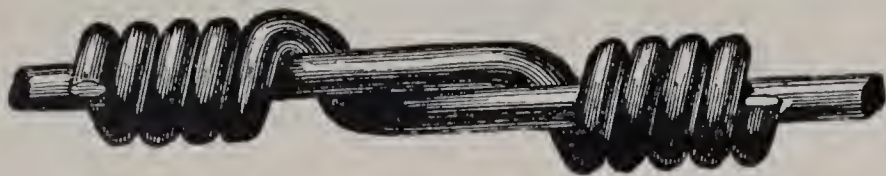
We are prepared to furnish Platinum Wire and Sheet Platinum in all sizes from No. 12 to 40 B. & S. gauge, but owing to fluctuations in the market quote no list price. It is sold by the inch or ounce.

For Explanation of Trade Word see page 4.



WIRE.

IRON AND STEEL LINE WIRE.



We furnish Line Wire in three grades, as follows, and can fill orders of any size and grade with promptness:

Owing to fluctuations in the market, we quote prices upon application.

- I. EXTRA-BEST BEST.
- II. BEST BEST, in *Long Lengths*.
- III. STEEL.

1. “*Extra-Best Best*,” by improved continuous processes from very best iron. This grade stands highest of any known telegraph wire in conductive power, with a “weight per mile ohm” of from 4,600 to 5,100 lbs. Very uniform in quality, pure, very tough and pliable.

2. “*Best Best*.” Less uniform and tough than the above named, but stands a good mechanical test. “Weight per mile ohm,” 5,500 to 5,800 lbs. Is largely used by some telegraph companies, and in railway telegraph service.

3. “*Steel*,” or homogeneous metal, more expressly designed for short-line telephone service, where a measure of conductivity can be exchanged for greater tensile strength in a very light, strong wire, 6,600 to 7,000 “weight per mile ohm.”

The first named, or “Extra-best best,” is almost exclusively employed in the best Telegraph service, and it is the only description recognized in the elaborate table of tests which form a valuable and indispensable feature of all discussions of electric science applied to telegraphy; though there are instances in line construction where long spans call for a wire of greater tensile test strength, and steel is employed for that purpose.

The standard breaking strain of superior galvanized wire is two and one-half times its weight per mile.

WEIGHT AND RESISTANCE OF EXTRA-BEST BEST GALVANIZED IRON LINE WIRE.

No.	Diameter.	Lbs. per Mile.	Ohms per Mile.	Feet per lb.	Tensile Strength.
4	.229	730.	7.	7.23	1900
6	.196	540.	9.5	9.59	1500
8	.165	380.	13.	13.89	1100
9	.151	320.	15.	16.5	900
10	.138	268.	18.	19.7	700
11	.123	215.	23.	24.65	550
12	.108	164.	32.	32.19	450
14	.083	96.	55.	55.	250
16	.066	60.	80.	88.	150

STEEL WIRE.

No.	Resistance.	Weight per Mile.
14	75.3 ohms.	95 lbs.
16	121.8 “	55 “

Iron and Steel Wires as above are measured by the “Washburn & Moen” gauge.  
For all classes of Guy and Suspending Wires and Cables see page 114.

INSULATED EXTRA-BEST BEST GALVANIZED IRON WIRE.

Double Braided, per Mile.

No.	W. & M. Gauge.	Paraffined.	Weatherproof.
	10	\$40.00	\$48.00
	12	33.00	40.00
	14	30.00	38.00

IMPROVED CANDEE GALVANIZED IRON WIRE.

Size of Wire, W. & M. Gauge.	Weight per Mile. Pounds.	Price per Mile.
9	460	\$105.00
12	268	70.00
14	185	60.00



SHEET COPPER.

Numbers. B. & S. Gauge.	¼ Inch and Narrower.	Over ¼ Inch to ½ Inch.	Over ½ Inch to 2 Inches.	Over 2 Inches to 10 Inches.	Over 10 Inches to 12 Inches.	Over 12 Inches to 14 Inches.	Over 14 Inches to 16 Inches.
12-20.....	\$0.32	\$0.29	\$0.28½	\$0.28	\$0.29	\$0.30	\$0.32
21-24.....	.35	.31	.30	.29	.30	.31	.33
25-26.....	.35½	.31½	.30½	.29½	.30½	.31½	.34
27-28.....	.36	.32	.31	.30	.31	.32	.35
29.....	.42½	.33½	.32	.30½	.31½	.32½	.35½
30.....	.43	.34	.32½	.31	.32	.33	.36
31.....	.43½	.34½	.33	.31½	.32½	.33½	.36½
32.....	.44	.35	.33½	.32	.33	.34	.37
33.....	.50½	.38½	.35½	.32½	.33½	.34½	.37½
34.....	.51	.39	.36	.33	.34	.35	.38
35.....	.51½	.39½	.36½	.33½	.34½	.35½	.38½
36.....	.52	.40	.37	.34	.35	.36	.39
37.....	.52½	.40½	.37½	.34½	.35½	.36½	.39½

When we cut Sheet Copper we make an additional charge of 15c., net, per lb.

SHEET BRASS.

Numbers. B. & S. Gauge.	¼ Inch and Narrower.	Over ¼ Inch to ½ Inch.	Over ½ Inch to 2 Inches.	Over 2 Inches to 10 Inches.	Over 10 Inches to 12 Inches.	Over 12 Inches to 14 Inches.	Over 14 Inches to 16 Inches.
12-20.....	\$0.25	\$0.22	\$0.21½	\$0.21	\$0.22	\$0.23	\$0.25
21-24.....	.28	.24	.23	.22	.23	.24	.26
25-26.....	.28½	.24½	.23½	.22½	.23½	.24½	.27
27-28.....	.29	.25	.24	.23	.24	.25	.28
29.....	.35½	.26½	.25	.23½	.24½	.25½	.28½
30.....	.36	.27	.25½	.24	.25	.26	.29
31.....	.36½	.27½	.26	.24½	.25½	.26½	.29½
32.....	.37	.28	.26½	.25	.26	.27	.30
33.....	.43½	.31½	.28½	.25½	.26½	.27½	.30½
34.....	.44	.32	.29	.26	.27	.28	.31
35.....	.44½	.32½	.29½	.26½	.27½	.28½	.31½
36.....	.45	.33	.30	.27	.28	.29	.32
37.....	.45½	.33½	.30½	.27½	.28½	.29½	.32½

Any length or shape furnished to order. When we cut Sheet Brass we make an additional charge of 15c., net, per lb.

In ordering Sheet Copper or Brass please use the numbers.

HIGH BRASS RODS.  
NOT LESS THAN 2-FT. LENGTHS.



Smaller than No. 8.....per lb., \$0.35 | ¼ in. to 1 in. diameter, both inclusive.....per lb., \$0.30  
No. 8 and less than ¼ in. diameter ..... " .30 | Over 1 in..... " .32

In ordering High Brass Rods please use the numbers.

SEAMLESS DRAWN BRASS AND COPPER TUBING.  
STUBS' GAUGE.



In ordering, state whether Brass or Copper is desired,

TABLE FOR REGULAR SIZES.

O. D. Inches.....	5/8	3/4	13/16	7/8	15/16	1	1 1/8	1 1/4	1 3/8	1 1/2 in.
Stubs' Gauge.....	No. 18	17	17	17	16	16	16	14	14	14
Weight per foot, Brass.....	3/8	1/2	9/16	1/4	11/16	3/4	7/8	1	1 1/8	1 1/2 lb.
" " Copper.....	3/8	1/2	9/16	5/8	11/16	3/4	7/8	1 1/4	1 3/8	1 3/5 lb.

This tubing is hard drawn for lamp rods, is straight and smooth, with polished surface. The above are regular sizes and in 12 foot lengths. Any special sizes can be furnished. Prices upon application.



## TEST INSTRUMENTS.

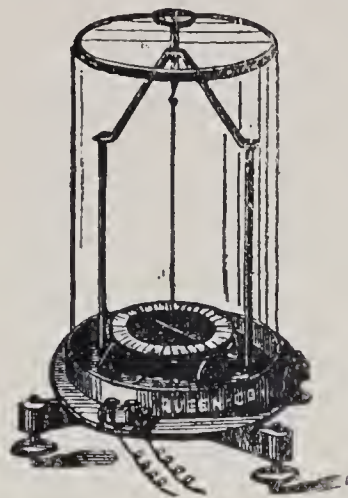
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I N the following pages we list a line of Test Instruments such as our experience shows are generally used for all ordinary electrical measurements, and we can recommend them as being thoroughly first class in every respect. While we do not show some apparatus that would be needed for college or high class laboratory work, we are prepared to fill orders for the same and obtain the apparatus on short notice. Electricians will find, however, that our list of instruments is very complete.



TEST INSTRUMENTS.

DIFFERENTIAL GALVANOMETER.



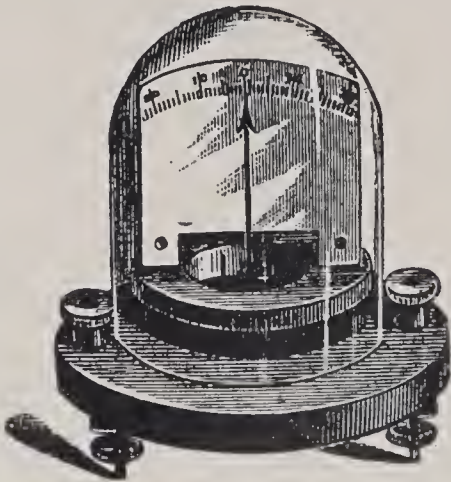
For testing the resistance of batteries, wires, etc., etc. On mahogany leveling stand, with glass cover, needles suspended by fibre of unspun silk.

Trade Word.

Eager.....\$37.50

Price.

VERTICAL  
DETECTOR GALVANOMETER.

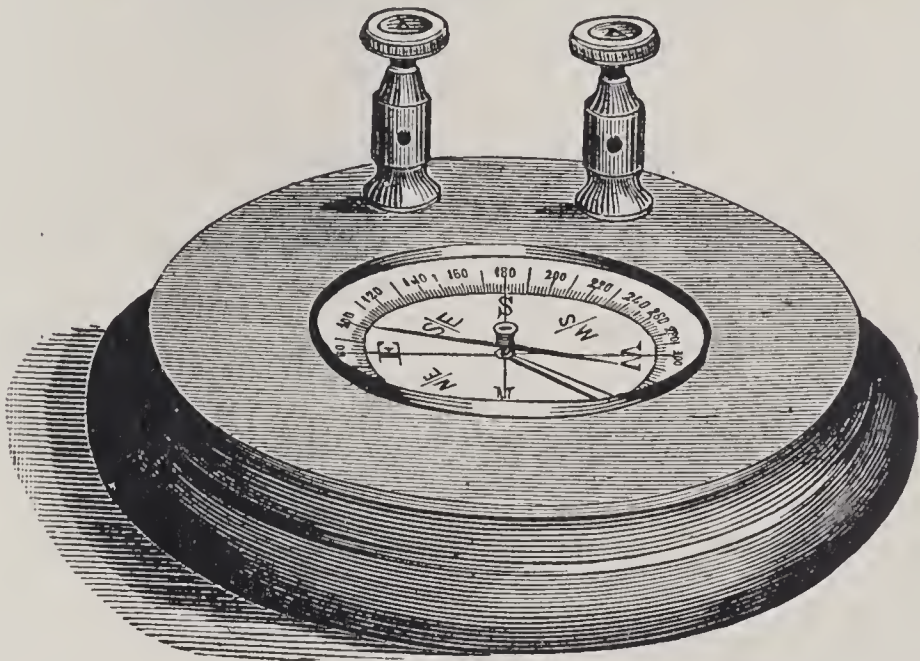


Trade Word.

Eagerly.....\$15.00

Price.

HORIZONTAL DETECTOR GALVANOMETER.



No. 1 has a brass cover and is provided with fixing points. No. 2 is without these attachments.

Trade Word.

Eagerness. No. 1.....\$9.00

Eagle.        " 2.....6.00

Price.

POCKET GALVANOMETER.



(FULL SIZE.)

A handsomely finished and valuable little Galvanometer, mounted in highly polished hard rubber case, with hard rubber cover. Cut, which is full size, shows that with cover on it is not much larger in diameter than a silver dollar. Everybody having to do with electricity should carry one.

Trade Word.

Ear.....\$6.00

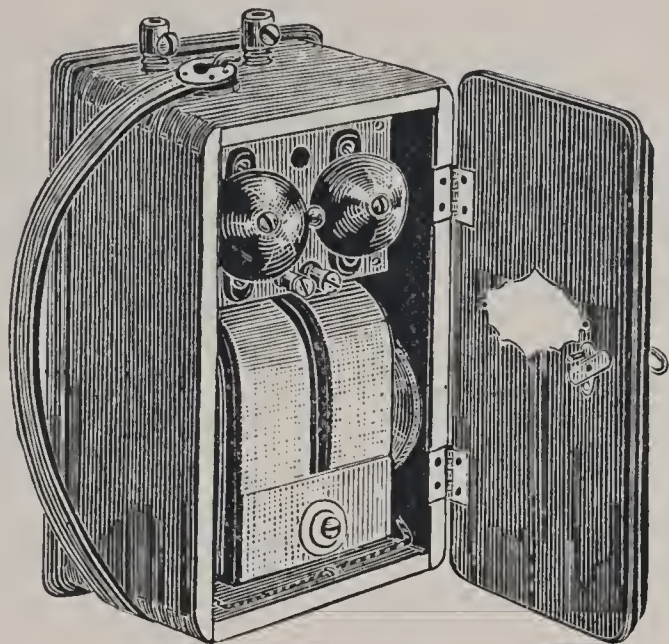
Price.

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

NEW MAGNETO TESTING BELL.



This new style of Magneto Bell for testing Electric Light circuits, armatures, etc., is a very convenient instrument for Electricians to handle. A novel feature of this Bell is that the ringer and gongs are *INSIDE* of the case. The crank, when not in use, can be easily removed and placed inside in a receptacle made for the purpose, thus leaving no parts exposed on the outside subject to accident. The binding posts are made to take a wire from the size of the smallest office wire up to No. 4 B. & S. gauge. These Bells are wound to Standard, ringing through 10,000 ohms ; and to Extra Standard, ringing through 15,000 to 25,000 ohms. They are put up in a handsomely polished mahogany case, with a russet strap attached, as shown in the illustration, for convenience in carrying about. The size of the case, outside measurement, is 8 $\frac{3}{4}$  inches long, 5 $\frac{1}{2}$  inches wide and 5 inches deep. Weight, about 9 pounds.

Trade Word.				Price.
Earl.	Standard.	10,000 ohms	.....	\$10.00
Earldom.	Extra Standard.	15,000 “	.....	12.00
Early.	“ “	20,000 “	.....	14.00
Earn.	“ “	25,000 “	.....	16.00

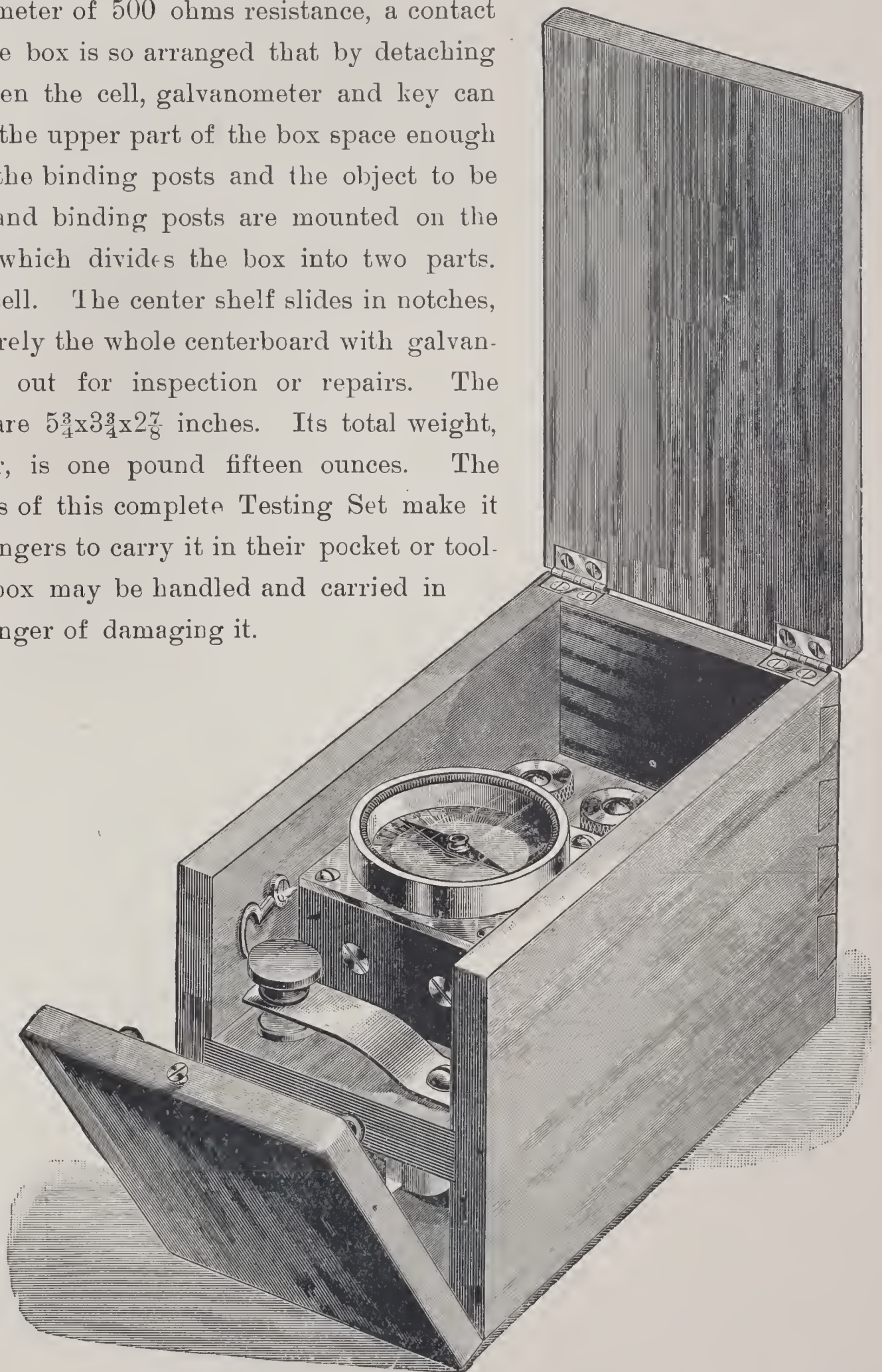
For Explanation of Trade Word see page 4.



## TEST INSTRUMENTS.

### BADT TESTING SET FOR LINEMEN.

This new Testing Set, designed especially for linemen, dynamo tenders and bell hangers, illustrated in the accompanying cut, consists of a highly polished wood box, containing a small *dry* galvanic cell, a detector galvanometer of 500 ohms resistance, a contact key and two binding posts. The box is so arranged that by detaching two hooks the connections between the cell, galvanometer and key can be easily inspected. There is in the upper part of the box space enough to carry wires to be attached to the binding posts and the object to be tested. The galvanometer, key and binding posts are mounted on the upper surface of a little shelf which divides the box into two parts. The lower part contains the dry cell. The center shelf slides in notches, so that by opening the box entirely the whole centerboard with galvanometer and cell may be pulled out for inspection or repairs. The external dimensions of the box are  $5\frac{3}{4} \times 3\frac{3}{4} \times 2\frac{7}{8}$  inches. Its total weight, including cell and galvanometer, is one pound fifteen ounces. The small weight and the compactness of this complete Testing Set make it possible for wiremen and bell-hangers to carry it in their pocket or tool-bag. As the battery is dry the box may be handled and carried in any position without the least danger of damaging it.



Trade Word.

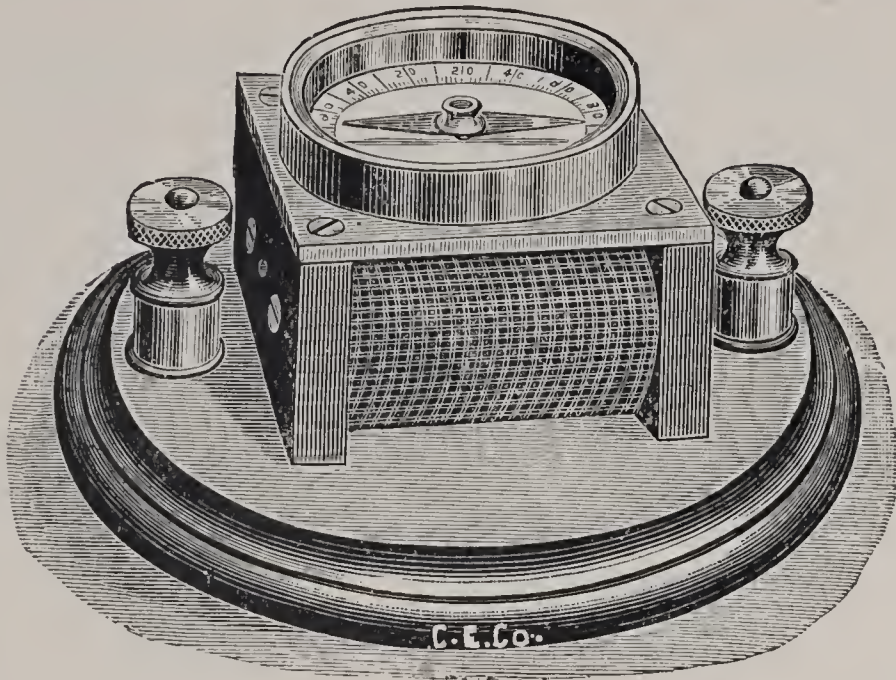
Earnest.....	Price.
Earnestly. Extra Dry Cell.....	\$20.00
	2.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

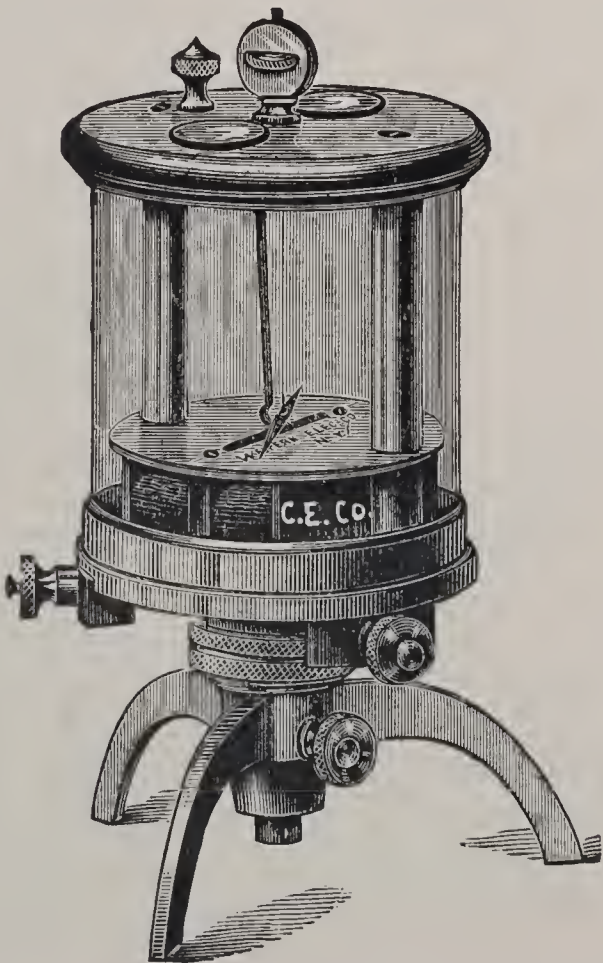
DETECTOR GALVANOMETER.



Trade Word.		Price.
Earnestness.	With 2 coils of low and high resistance.....	\$12.00
Earning.	“ 1 coil, resistance 100 to 200 ohms.....	10.00
Earth.	“ 1 “ low resistance.....	8.00

DETECTOR GALVANOMETER.

With Astatic Needle.



Silk Suspension for Delicate Currents.

Trade Word.		Price.
Earthly.....		\$50.00

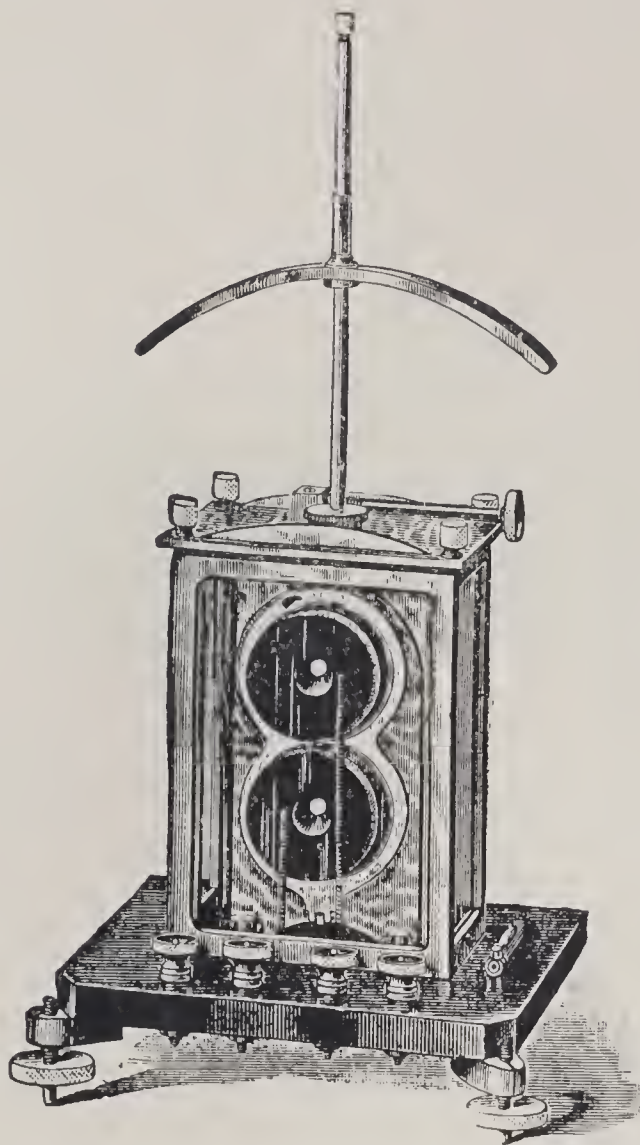
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

THOMSON SQUARE PATTERN REFLECTING GALVANOMETER.

With Patented Improvements. Type "D 4."



Instruments of this type have four coils, carried by frames opening on hinges. The coils can be connected singly, in series, series multiple, or multiple arc. Coils will be connected together in series unless otherwise ordered. Coils can be replaced by other sets of higher or lower resistance. The astatic system used is extremely light, insuring maximum sensitiveness, and a high figure of merit for this galvanometer. The upper front coil carries a lens, and a focus is formed by the mirror and lens.

Trade Word.	Resistance.	Price.
Earthquake.	4 to 500 Ohms.....	\$125.00
Ease.	600 to 5000 ".....	137.50
Easel.	5500 to 10000 ".....	150.00
Easement.	11000 to 25000 ".....	175.00

EXTRA COILS FOR TYPE "D 4" GALVANOMETER.

Four coils needed in each instrument.

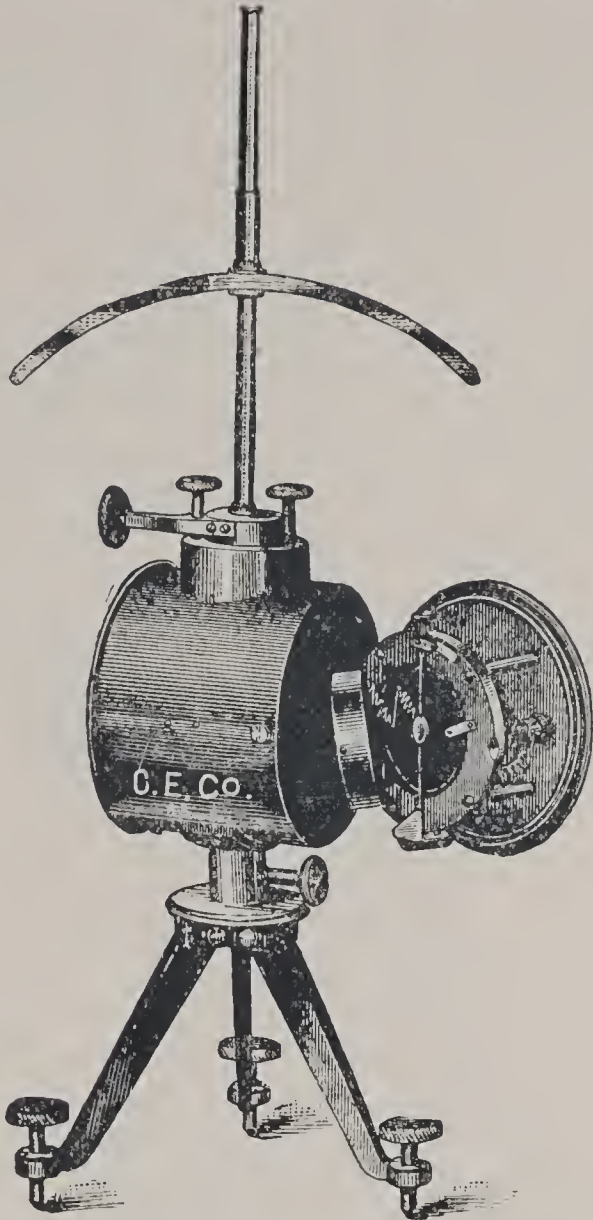
Trade Word.	Resistance.	Price.
Easily.	1 to 125 Ohms.....	per coil, \$ 5.00
Easiness.	150 to 1250 ".....	" 10.00
Easing.	1375 to 2500 ".....	" 15.00
East.	2750 to 6250 ".....	" 25.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

SMALL SIZE THOMSON REFLECTING GALVANOMETER.  
TRIPOD PATTERN, TYPE "D.1"



Trade Word.		Price.
Easter.	D 1. Thomson Reflecting Galvanometer, <i>small size</i> , tripod pattern, with swinging back and coil, low resistance.....	\$75.00

The ring which carries the front coil is attached by a hinge and a spring catch to the frame carrying the coils. This frame is held rigidly to the back of the case by four posts (the back of the case being also hung upon a hinge), and when closed against the case is held in position by a spring catch. The coils are slipped into the rings which hold them, and may be replaced by an extra set of coils of higher or lower resistance. When it is desired to get at the suspension, or change the coils, or alter the astatic system, all that is necessary is to withdraw the spring catch at the side of the case and swing the back out on its hinge. The front coil may then be swung out of the way.

Complete, with *two* coils connected together in series, unless otherwise ordered.

Trade Word.	Resistance.	Price.
Easterly.	2 ohms to 150 ohms, "D 2" Type, same as "D 1," but larger.....	\$91.50
Eastern.	170 " 3,000 " "D 3" Type.....	97.50

EXTRA COILS FOR TYPES "D1" AND "D2" GALVANOMETER.

Two Coils are required in each instrument.

Trade Word.	Resistance.	Price.
Eastward.	1 ohm to 75 ohms.....	per coil, \$2.00
Eatable.	85 ohms to 1,500 ".....	" 5.00

LARGE SIZE THOMSON REFLECTING GALVANOMETER.  
TYPE "D3."

Similar to Types "D1" and "D2," but larger and carrying coils of greater diameter.

Trade Word.	Resistance.	Price.
Eating.	2 ohms to 250 ohms.....	\$100.00
Eaves.	300 " 2,500 ".....	106.00
Ebb.	2,750 " 5,000 ".....	110.00
Ebbing.	5,500 " 12,500 ".....	115.00

EXTRA COILS FOR TYPE "D3" THOMSON GALVANOMETER.

Two Coils are required in each instrument.

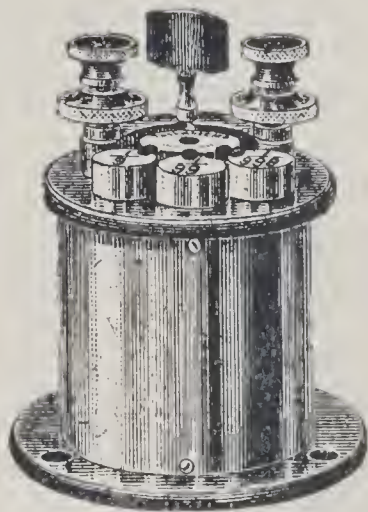
Trade Word.	Resistance.	Price.
Ebony.	1 ohm to 125 ohms.....	per coil, \$3.50
Ebriety.	150 ohms to 1,250 ".....	" 6.50
Eccentric.	1,376 " 2,500 ".....	" 8 50
Echo.	2,750 " 6,250 ".....	" 11.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

ROUND SHUNT BOX  
FOR GALVANOMETER.

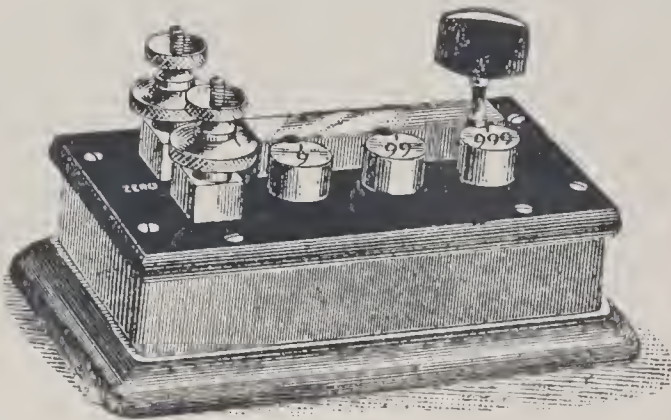


Trade Word.  
Eclipse . . . . . \$30.00

Price.

OBLONG SHUNT BOX  
FOR GALVANOMETER.

This is the most convenient Box to use in connection with low base Galvanometers.

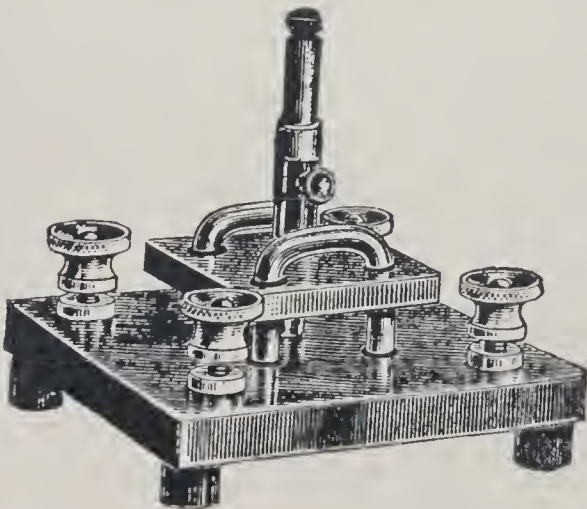


Trade Word.  
Ecliptic . . . . . \$30.00

Price.

These Shunt Boxes each contain three copper wire coils, adjusted to a resistance of, respectively,  $\frac{1}{9}$ ,  $\frac{1}{9.9}$  and  $\frac{1}{9.99}$  of the resistance of the Galvanometer in connection with which they are to be used. When ordered separately, always state resistance of Galvanometer, as we cannot furnish correctly proportioned Shunt Coils without this data. When the resistance of the Galvanometer is unknown, send the Galvanometer with the order for Shunts. The correct resistance of the Galvanometer will then be determined at our laboratory without extra charge.

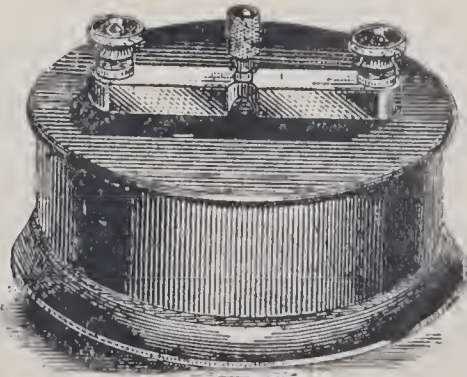
MERCURY COMMUTATOR.



Trade Word.  
Economy . . . . . \$18.00

Price.

1-3 MICRO-FARADAIC CONDENSER.



**SUPERIOR MICA AND TINFOIL CONSTRUCTION**  
Trade Word.  
Ecstasy . . . . . \$60.00

Price.

Condensers of high or low capacity made to order ; also Adjustable Condensers.

For Explanation of Trade Word see page 4.

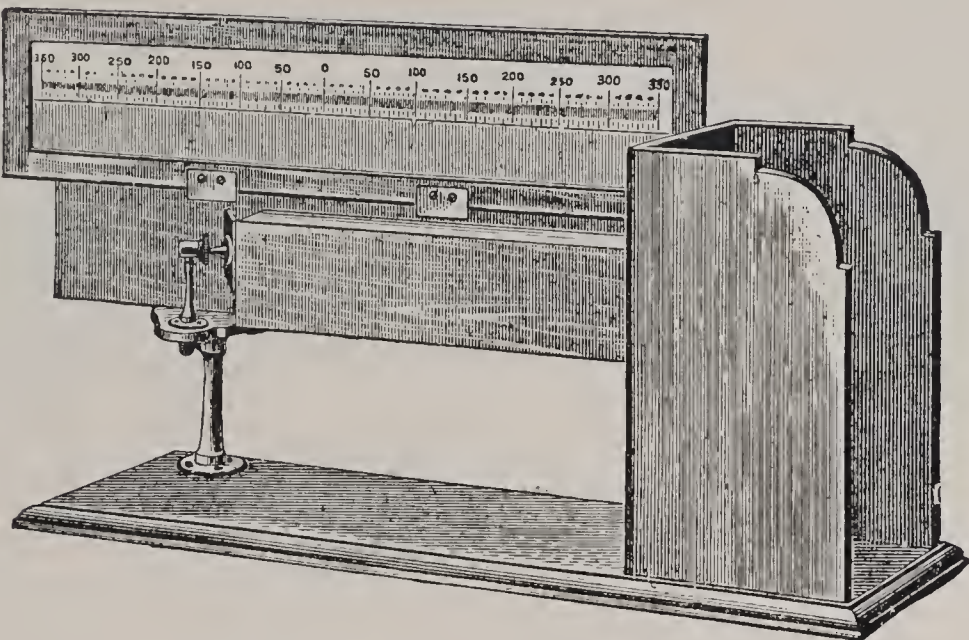


TEST INSTRUMENTS.

TROY PATTERN LAMP, STAND AND SCALE.

FOR REFLECTING GALVANOMETER.

TYPE "F I."

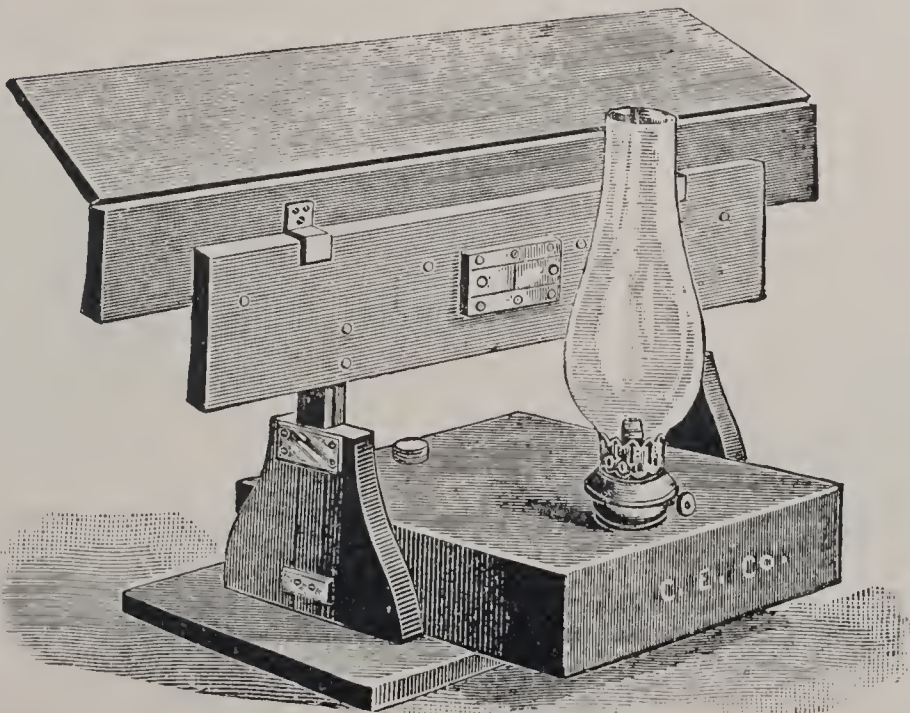


Trade Word.	Price.
Eddy .....	\$18.75

This mahogany lamp stand admits of both vertical and horizontal adjustments, the lamp remaining stationary. The reflecting mirror is adjusted by employing a universal joint.

ENGLISH PATTERN LAMP, STAND AND SCALE.

FOR REFLECTING GALVANOMETER.



Trade Word.	Price.
Eden .....	\$20.00

For Explanation of Trade Word see page 4.

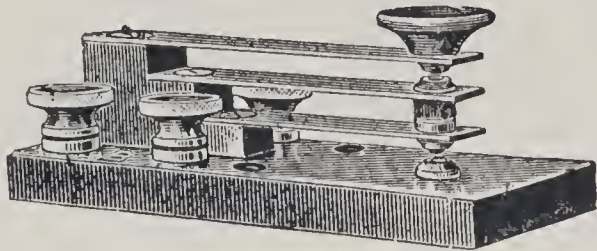


## TEST INSTRUMENTS.

### KEYS FOR USE IN CONNECTION WITH GALVANOMETERS.

#### DOUBLE SUCCESSIVE CONTACT KEY.

TYPE "P 1."



Trade Word.	Price.
Edge.....	\$15.65

TYPE "P 3" KEY.

Single Plug Key.

Trade Word.	Price.
Edible.....	\$3.00

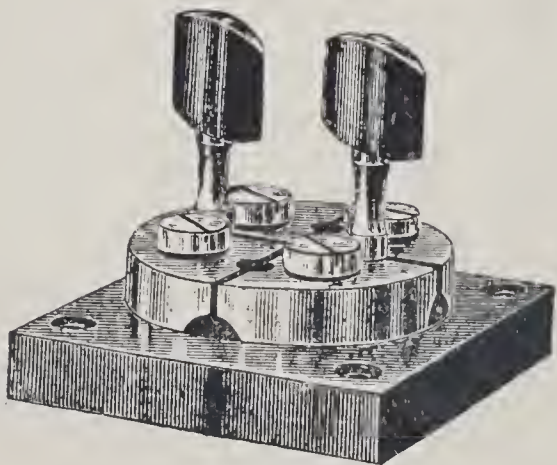
TYPE "P 4" KEY.

Same as "P 3" Type, with Vulcanite Pillars.

Trade Word.	Price.
Edict.....	\$7.00

#### DOUBLE PLUG KEY.

TYPE "P 5."



Trade Word.	Price.
Edifice.....	\$5.00

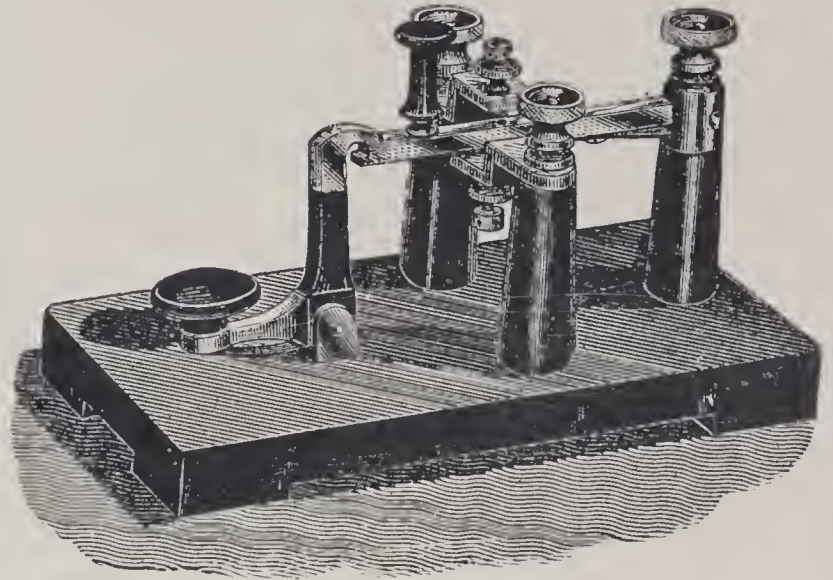
TYPE "P 6."

Same as Type "P 5," with Vulcanite Pillars.

Trade Word.	Price.
Edify.....	\$8.45

#### IMPROVED DISCHARGE KEY.

TYPE "P 2."

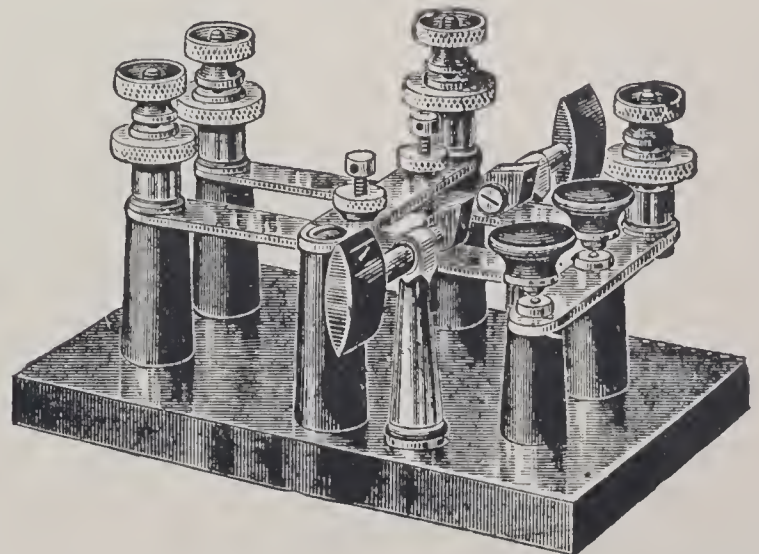


Trade Word.	Price.
Edgewise.....	\$20.00

It consists primarily of a solid lever, hinged at one end and playing between two adjustable contacts attached to two terminals. A finger trigger is hinged to the base of the instrument; this trigger carries a brass hook which catches upon steps cut in the extremity of the brass lever. If, by means of the knob, the lever be pushed down against the lever contact, the hook of the trigger will catch upon the upper surface of the lever. The key is now in the position to charge. If, while in this position, the trigger be depressed, the hook will be carried forward a little, allowing the lever to rise by means of its spring until the first step is against the hook, thus insulating the lever from both contacts; this being the position shown in the cut. If now, the trigger be pressed so as to overcome the resistance of a second spring the lever will spring up against the top contact.

#### REVERSING KEY, ON PILLARS.

TYPE "P 7."



Highly insulated, with hard rubber pillars and base, platinum contacts.

Trade Word.	Price.
Edifying.....	\$25.00

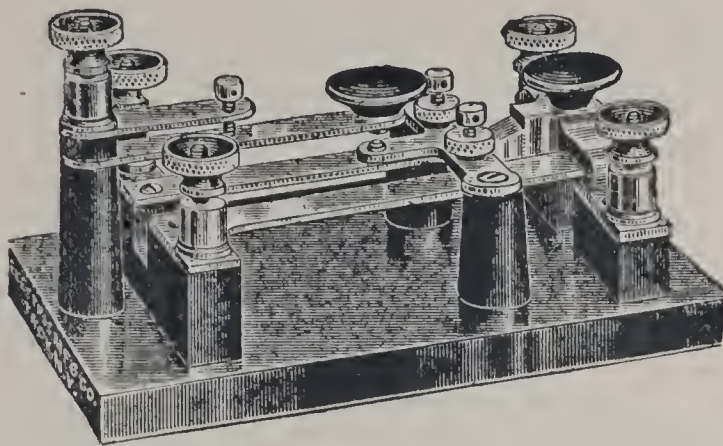
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

KEY FOR CAPACITY TESTS.

Type "P 8."

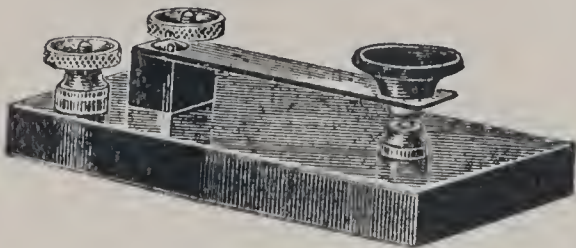


Highly Insulated Hard Rubber Pillars and Base,  
Platinum Contacts.  
Trade Word.  
Editor.....:.....\$28.15

Price.

SINGLE CONTACT KEY.

Type "P 9."

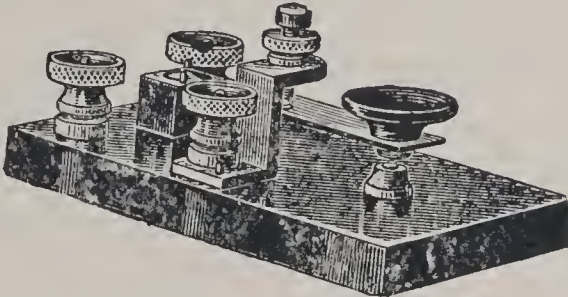


Trade Word,  
Edition.....\$6.25

Price.

COMBINATION KEY.

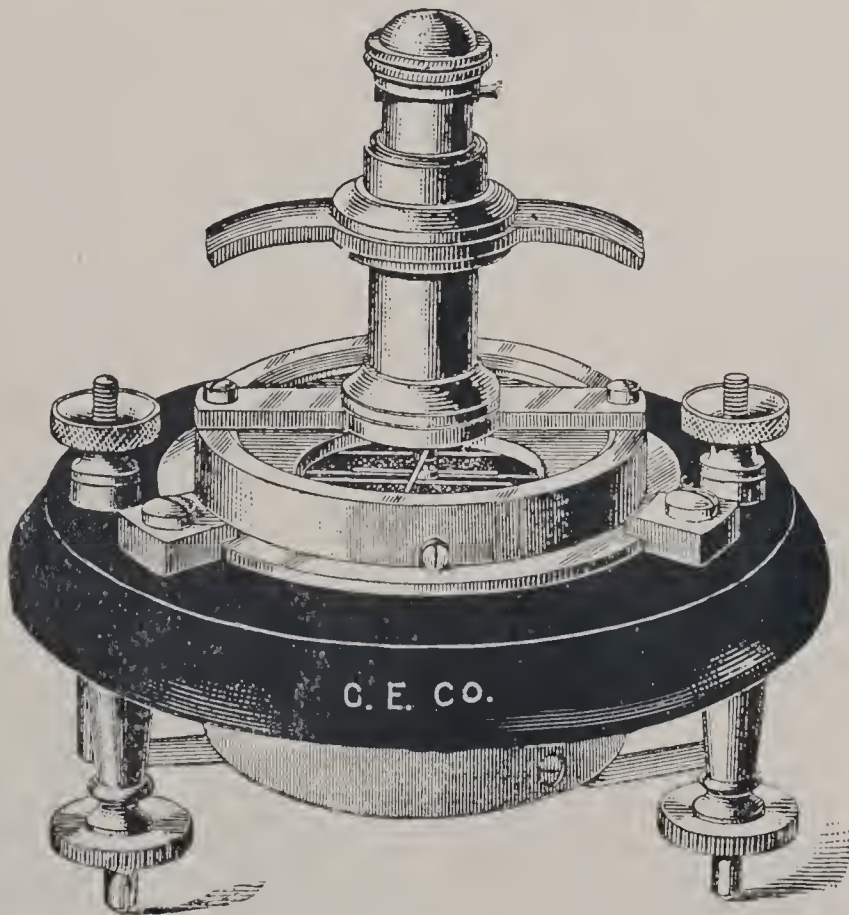
Type "P 10."



Hard Rubber Base. Platinum Contacts. Upper one is adjustable.  
Trade Word.  
Educate.....\$8 15

Price.

ASTATIC TESTING SET GALVANOMETER.



This is a compact and portable galvanometer, combining many of the best features of higher priced direct reading instruments of this class. The astatic system is suspended by a delicate silk fibre, and the aluminum pointer can readily be brought to zero by turning the directing magnet.  
Trade Word.  
Education.....\$27.00

Price.

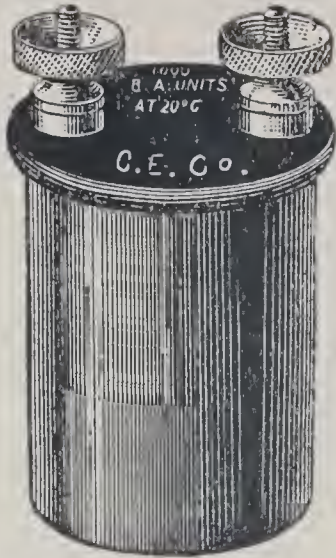
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

STANDARD RESISTANCE COILS.

TYPE "G."

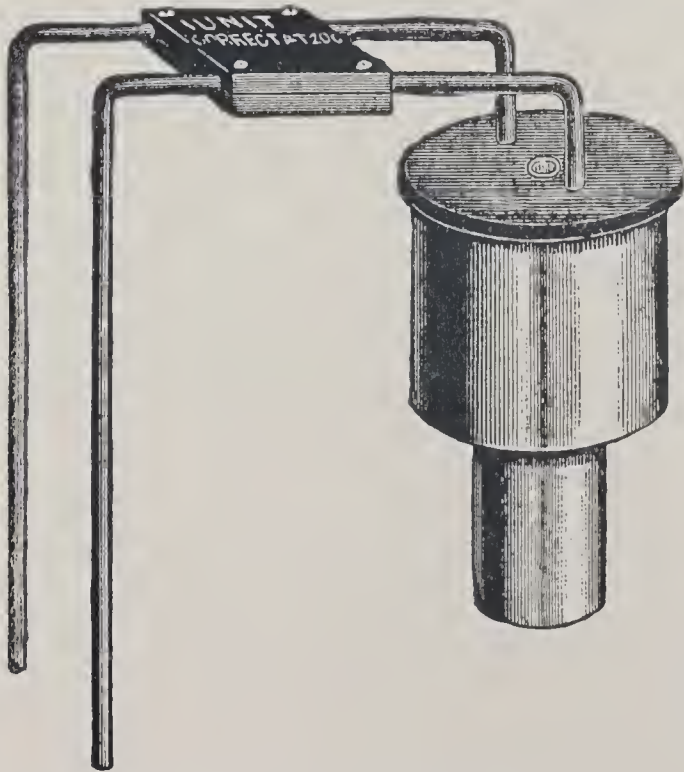


Any resistance from 1 Ohm to 10,000 Ohms.

These coils are constructed of Platinum Silver Alloy wire or of German Silver wire, as preferred, enclosed in a brass casing, with hard rubber top and binding screws, accurately adjusted at given temperature. Cut illustrates this style of Single Standard. Only one coil can be inserted.

WOUND WITH PLATINUM SILVER ALLOY WIRE.			WOUND WITH GERMAN SILVER WIRE.		
Trade Word.	Resistance Ohms.	Price each.	Trade Word.	Resistance Ohms.	Price each.
Efface . . . . .	1	\$ 7.55	Effulgent . . . . .	1	\$ 7.00
Effect . . . . .	2	8.00	Effuse . . . . .	2	7.05
Effected . . . . .	5	8.25	Effusion . . . . .	5	7.10
Effective . . . . .	10	8.40	Effusive . . . . .	10	7.15
Effectual . . . . .	20	8.60	Egg . . . . .	20	7.25
Effeminate . . . . .	50	8.75	Egotism . . . . .	50	7.40
Effete . . . . .	100	8.95	Egotist . . . . .	100	7.60
Efficacy . . . . .	200	9.10	Egress . . . . .	200	7.75
Efficient . . . . .	500	9.35	Egyptian . . . . .	500	8.30
Effigy . . . . .	1,000	9.65	Either . . . . .	1,000	8.50
Efflux . . . . .	2,000	10.20	Eject . . . . .	2,000	8.65
Effort . . . . .	5 000	10.55	Ejected . . . . .	5,000	9.00
Effrontery . . . . .	10,000	11.20	Ejecting . . . . .	10,000	9.50

STANDARD COPY OF THE B. A. UNIT,  
AS ISSUED BY THE COMMITTEE.



PLATINUM SILVER ALLOY WIRE.	
Trade Word.	Price.
Ejection. B. A. Unit..	\$28.00
Ejectment. Legal Ohm..	28.00

GERMAN SILVER WIRE.	
Trade Word.	Price.
Elaborate. B. A. Unit..	\$25.00
Elapse. Legal Ohm..	25.00

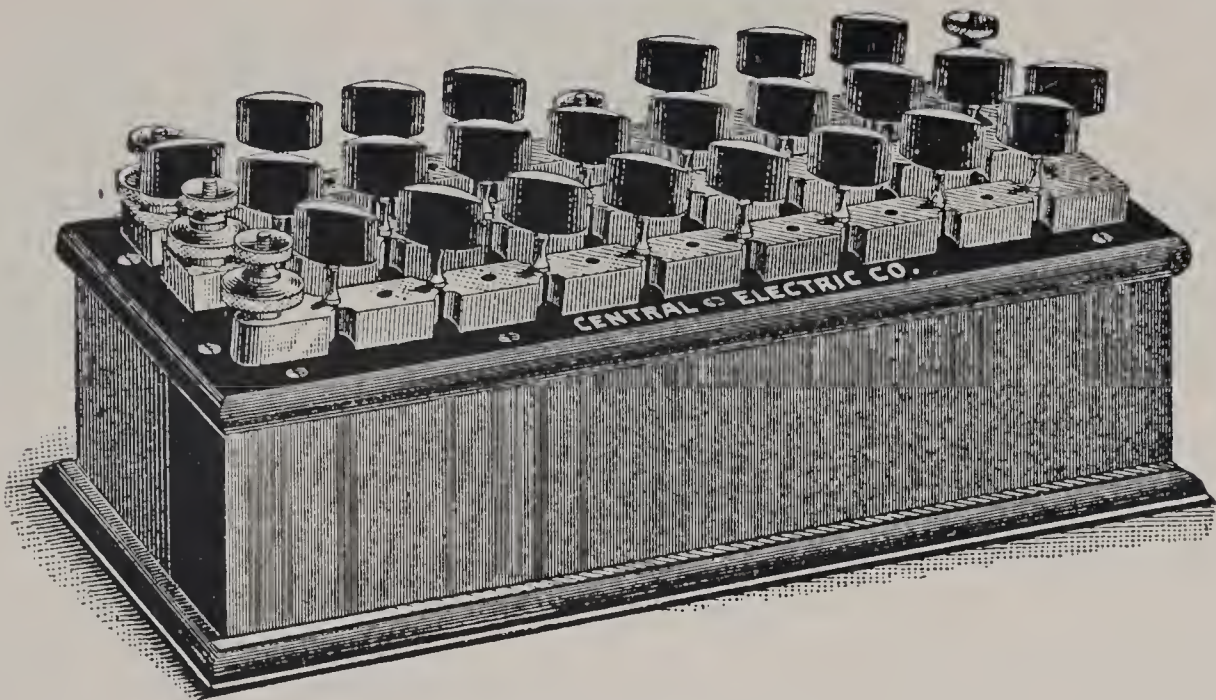
These coils will be calibrated in legal Ohms if so desired.  
Wound with Platinum Silver Alloy wire, or with German Silver wire, as preferred.

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

STANDARD 10,000 OHM RESISTANCE BOX,  
WITH BRIDGE COILS.



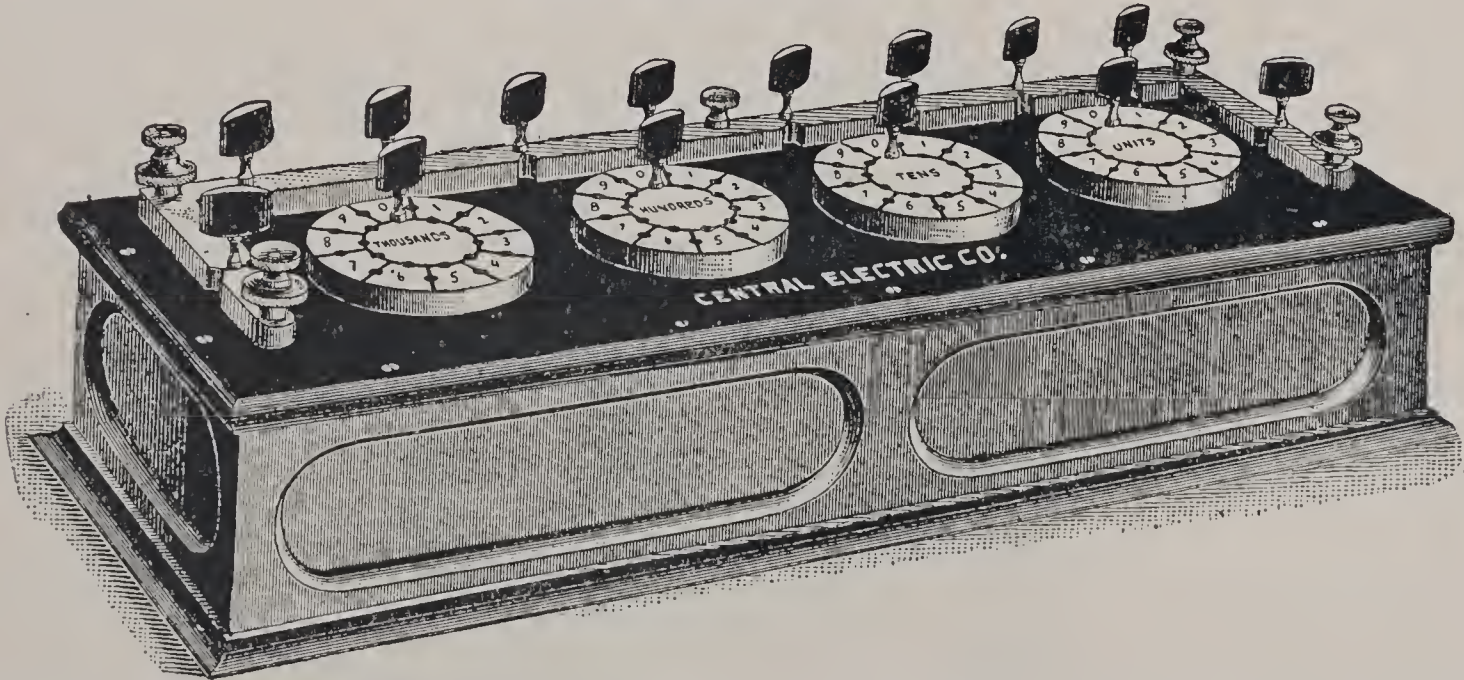
Wound with extra large size Platinum Silver Alloy Wire, or German Silver Wire, as preferred. Coils are arranged as follows : 1, 2, 2, 5, 10, 10, 20, 50, 100, 100, 200, 500, 1000, 1000, 2000 and 5,000 Ohms, accurately adjusted at given temperature, with six extra Coils, two each of 10, 100 and 1,000 Ohms for bridge.

Trade Word.		Price.
Elastic.	Platinum Silver Alloy Wire winding.....	\$270.00
Elasticity.	German Silver Wire winding.....	210.00

Without Bridge Attachment or extra Coils, but divided same as above:

Trade Word.		Price.
Elate.	Platinum Silver Alloy Wire winding.....	\$166.00
Elated.	German Silver Wire winding.....	116.00

STANDARD FOUR-DIAL RESISTANCE BOX  
WITH BRIDGE COILS.



This instrument has extra large Coils in Rheostat and Bridge. Four Dials are arranged with nine Coils under each, respectively units, tens, hundreds and thousands, and four pairs of proportional Coils on Bridge. Wound with Platinum Silver Alloy Wire, or with German Silver Wire, as preferred. Accurately adjusted at given temperature.

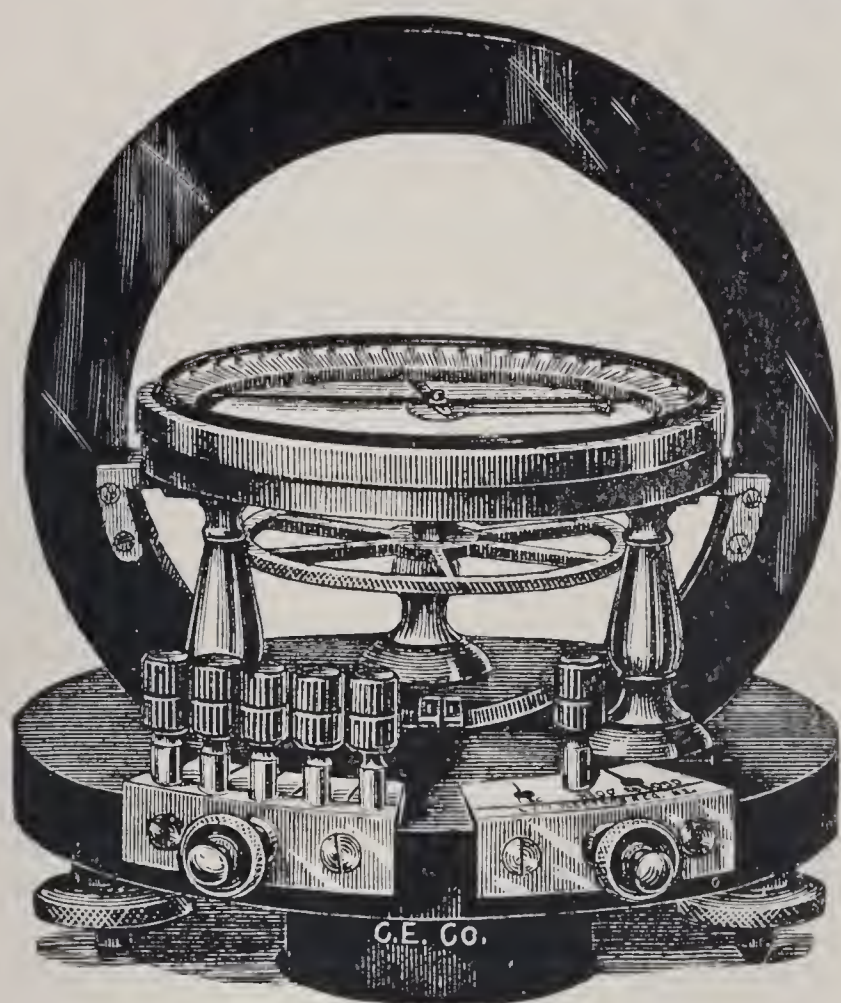
Trade Word.		Price.
Elation.	Platinum Silver Alloy Wire winding.....	\$365.00
Elbow.	German Silver Wire winding.....	300.00

For Explanation of Trade Word see page 4.



## TEST INSTRUMENTS.

### WESTERN UNION STANDARD, TANGENT GALVANOMETER.



Mounted on a circular hard rubber base,  $7\frac{1}{2}$  inches diameter, with leveling screws; needle  $\frac{7}{8}$  inch in length; ring 6 inches in diameter. The coils are 5 in number. The first is a stout copper band of inappreciable resistance; the others are of different sized copper wires carefully insulated. Five terminals are provided, the plug holes of which are marked respectively—0, 1, 10, 50 and 200. The ends of the coils are so arranged that the plug inserted at the terminal marked 200, puts in circuit 200 ohms of the Galvanometer coils; at the terminal marked 50, the 50 ohm Galvanometer coil; and so on, till at the zero terminal only the copper band is in circuit.

Fixed to the needle, which is balanced on jewel and point, is an aluminium pointer at right angles, extending across a 5-inch dial immediately beneath. The circumference of the dial is divided on one side into divisions proportioned to tangents of the degrees. The strength of any current passing through the coils of this instrument

being directly proportioned to the tangent of the angle of deflection, it is at once shown by the reading on the tangent side of the dial. The other side is graduated to ordinary degrees of arc. In the base of this Galvanometer is a set of resistance coils of the respective values of 10, 500 and 5000 ohms.

With this instrument all telegraph line tests can be made accurately and quickly.

It is furnished complete, enclosed in a finished mahogany case.

Trade Word.

Elderly ..... Price. \$150.00

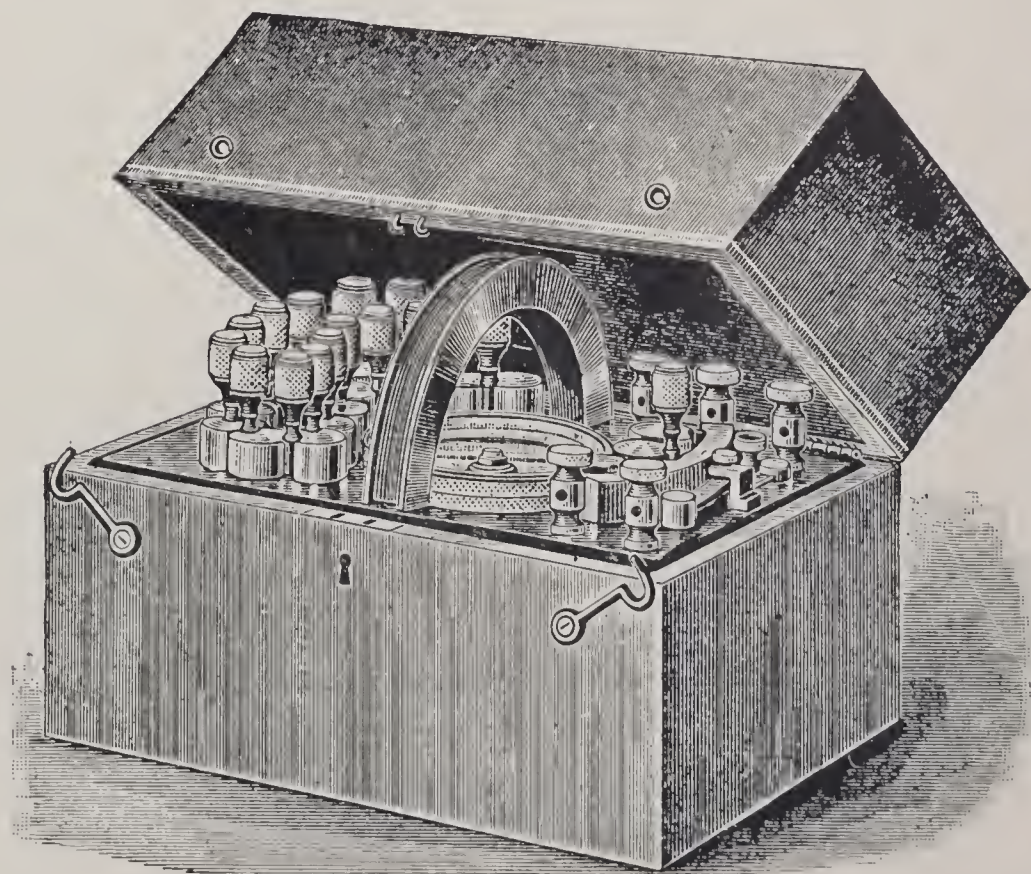
### BAILEY COMBINATION TESTING SET.

TYPE "X I."

This instrument has been designed to meet the wants of electricians, students and others, who wish a compact and portable testing set which will enable them, by following the printed instructions (accompanying each set), to make with sufficient accuracy a variety of measurements. It consists essentially of a 3-coil tangent Galvanometer, a Rheostat and combination key, contained in a mahogany case. There are 13 German silver wire coils in the Rheostat, 1443 $\frac{1}{2}$  ohms in the aggregate, which are respectively:  $\frac{1}{2}$ , 1, 2, 3, 7, 10, 20, 30, 70, 100, 200, 300 and 700 ohms.

Trade Word.

Eldest ..... Price. \$70.00



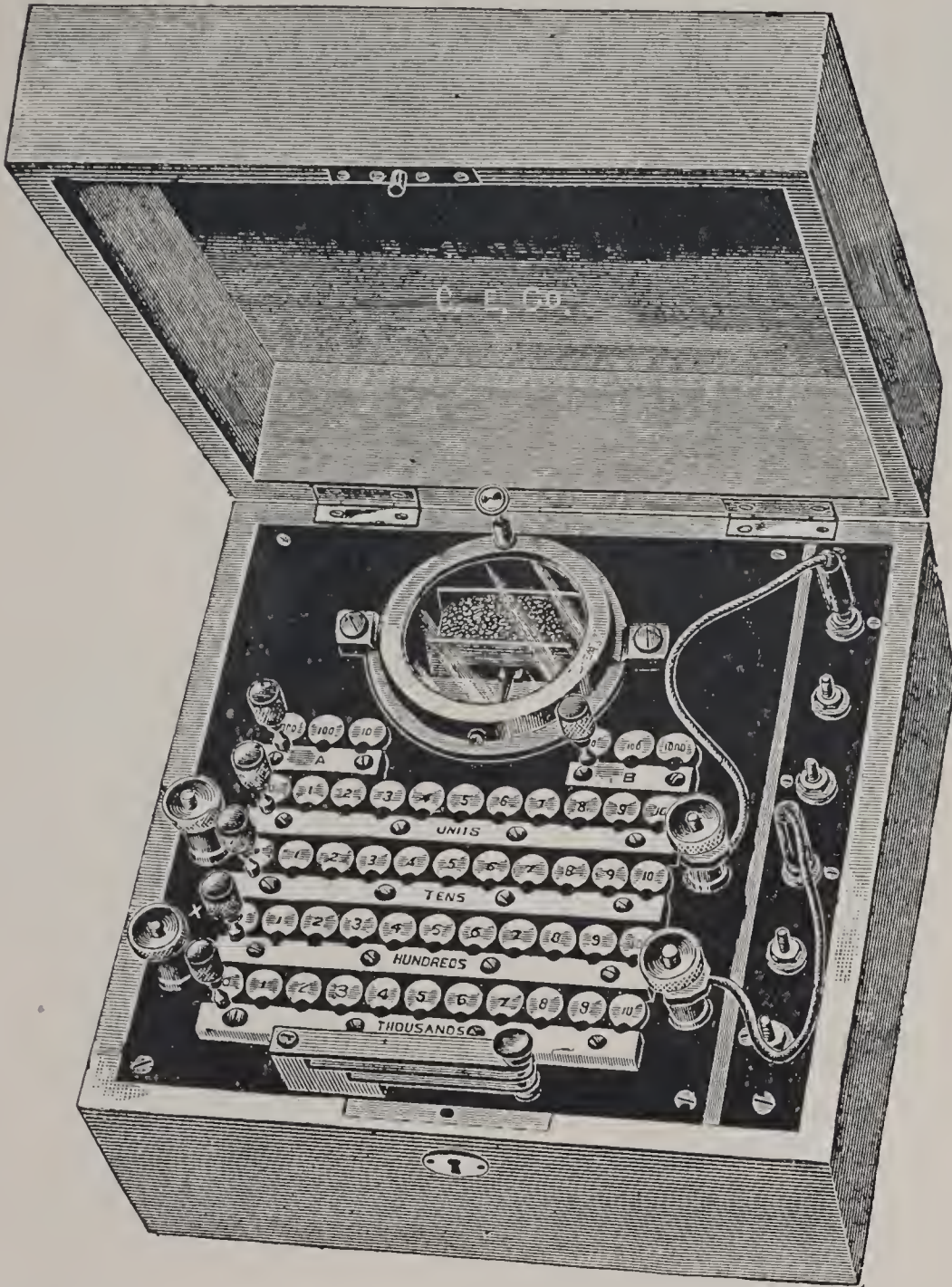
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

WHEATSTONE'S BRIDGE TESTING SET.  
COMBINED WITH BATTERY.

TYPE "Y2."



This is a complete and very portable form of apparatus for measuring resistances. It consists of a Sensitive Galvanometer, a set of forty Rheostat Coils, six Bridge Coils, a double Successive Contact Key, and five cells of Chloride of Silver Dry Battery, with flexible conducting cords. All contained in a polished velvet lined mahogany case with brass trimmings, lock, key and handle.

The resistance coils are arranged in four rows of ten coils each, the rows being designated "Units," "Tens," "Hundreds" and "Thousands." There are 10, 100, and 1,000 Ohm coils on each arm of the bridge, thus giving an extreme range of measurement from 1-100th to 1,111,000 ohms. The arrangement of the coils is such that six plugs only are needed in this set—one in each arm of the bridge and one in each row of coils—making the reading the simplest possible. For example: If with A=100 and B=10, to obtain a balance it is necessary to plug 5 in the "Thousands," 0 in the "Hundreds," 7 in the "Tens" and 2 in the "Units" row, the resistance measured is equal to 507.2 ohms.

The Galvanometer can be revolved so that the needle will cover the zero line, without turning the case. A needle lifter is provided so that when the set is not in use the centre pin will not be injured.

Trade Word.		Price.
Elect.	Testing set with battery.....	\$105.00
Electing.	“ “ without battery.....	95.00

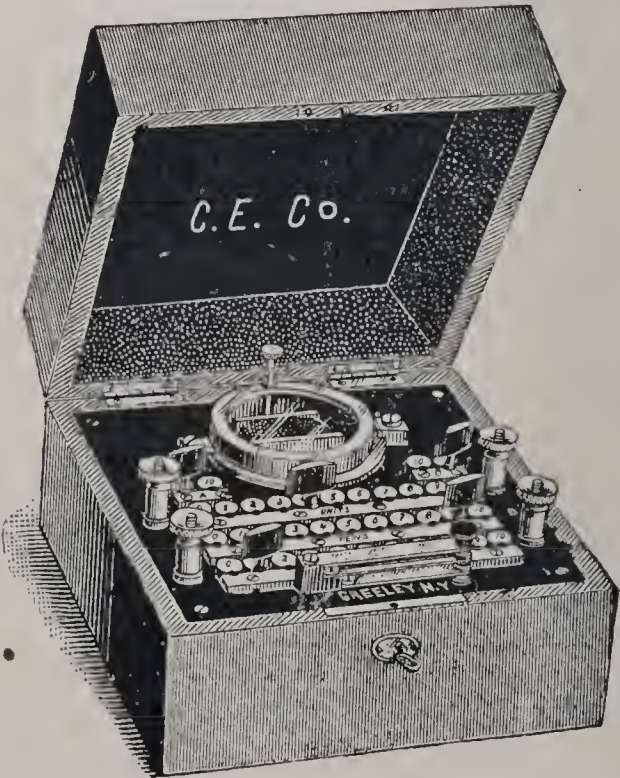
SMALL WHEATSTONE'S BRIDGE TESTING SET.

TYPE "Y1."

This instrument has rows of Unit, Ten, and Hundred Ohm coils in Rheostat, and Ten and Hundred Ohm coils on each arm of the Bridge. Range of measurement is from  $\frac{1}{10}$  of an Ohm to 11,100 Ohms.

This instrument is also provided with a chloride of silver dry battery when so desired.

Trade Word.		Price.
Election.	Without battery.....	\$80.00
Electioneer.	With battery.....	90.00



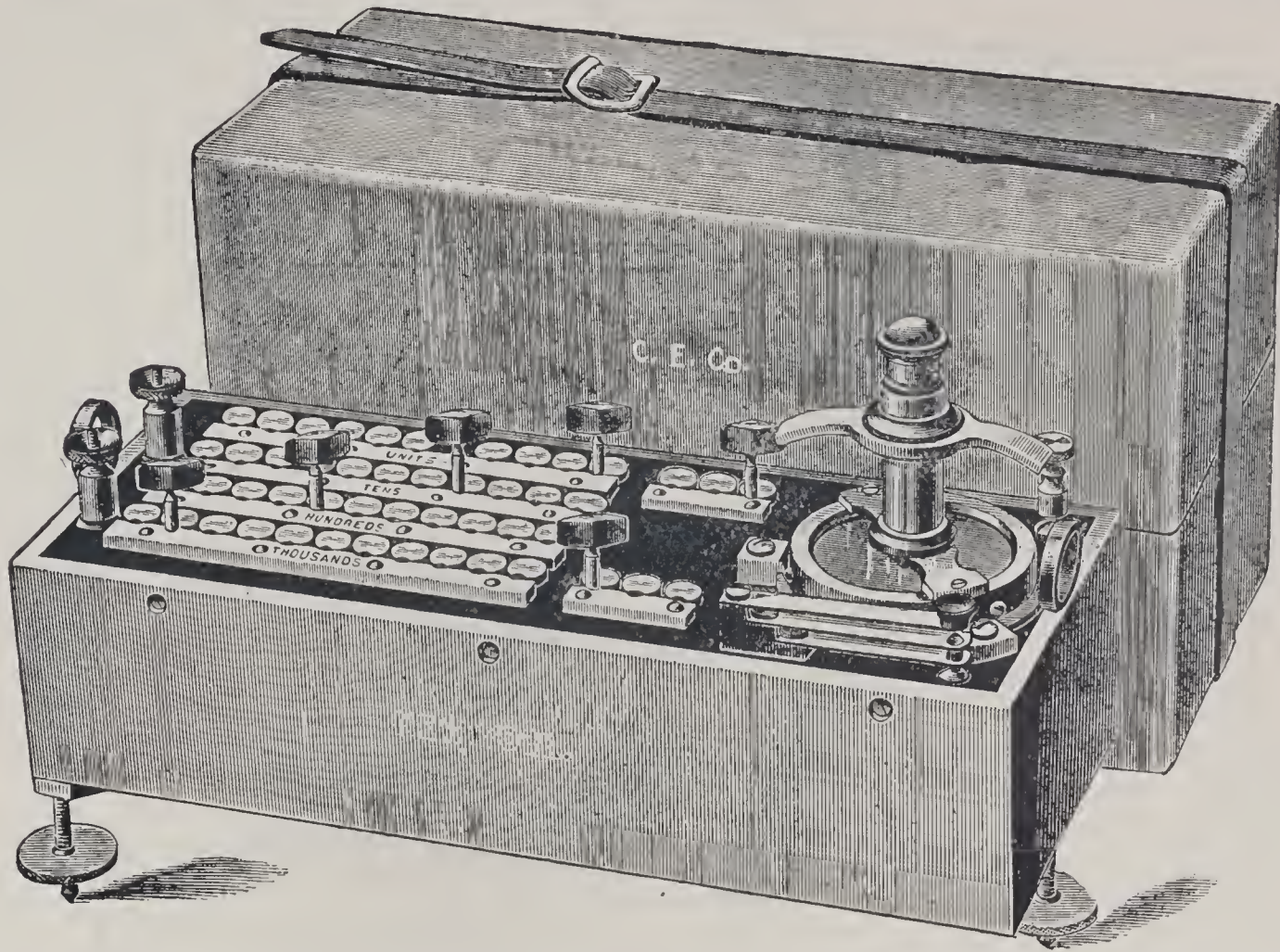
For Explanation of Trade Word see page 4.



## TEST INSTRUMENTS.

### No. 3 WHEATSTONE BRIDGE SET,

WITH FIBRE SUSPENDED NEEDLE AND REVOLVING GALVANOMETER, MOUNTED IN A FINELY POLISHED PORTABLE CASE.



The fibre suspension of the needle in this instrument secures extreme delicacy of action, the needle being strongly deflected through 1.1 megohms with five cells of Leclanchè Battery.

The act of closing the case releases the fibre from all tension, thus avoiding much of the risk of rupture in transportation.

The features of a revolving galvanometer and a variable and removable damping and directing magnet conduces to rapid work and ease of manipulation.

The apparatus can be used without removing from the case when it is not essential to level it. When necessary it can be handily lifted out, as shown in the cut, and leveled up with the screws provided for that purpose.

The bridge and resistance coils of this instrument are similar to those in the "Y 2" Wheatstone Bridge Set described on page 236.

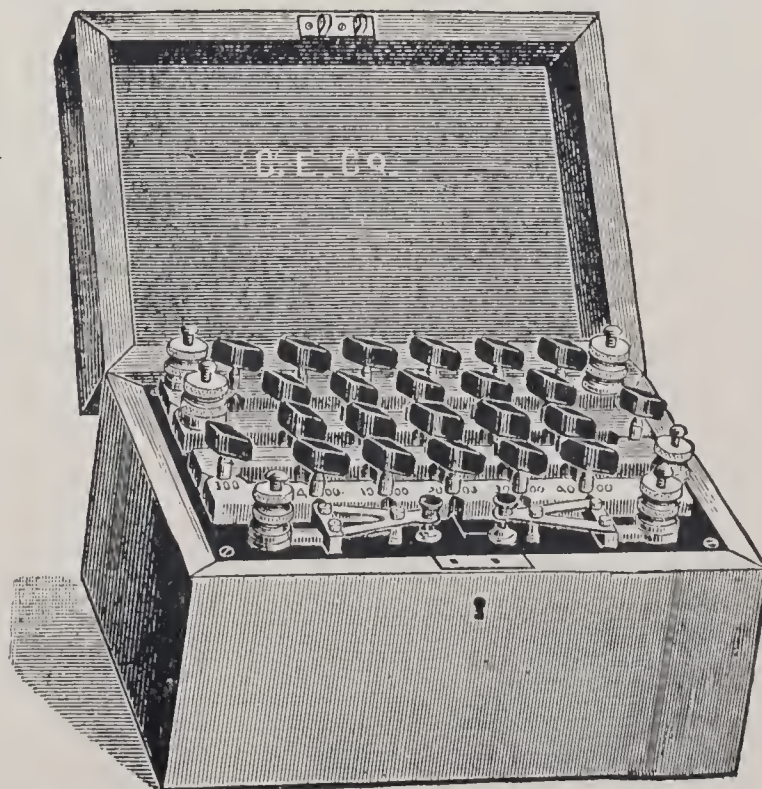
Trade Word.

Elective.....\$120.00

Price.

### ENGLISH POST OFFICE PATTERN RESISTANCE BOX.

This instrument has sixteen coils in Rheostat, having resistances as follows: 1, 2, 3, 4, 10, 20, 30, 40, 100, 200, 300, 400, 1000, 2000, 3000 and 4000 Ohms, and six coils in bridge, 10, 100 and 1000 Ohms in each arm. The coils are constructed of the finest Platinum Silver Alloy wire, or of superior German Silver wire, as preferred.



Trade Word.

Price.

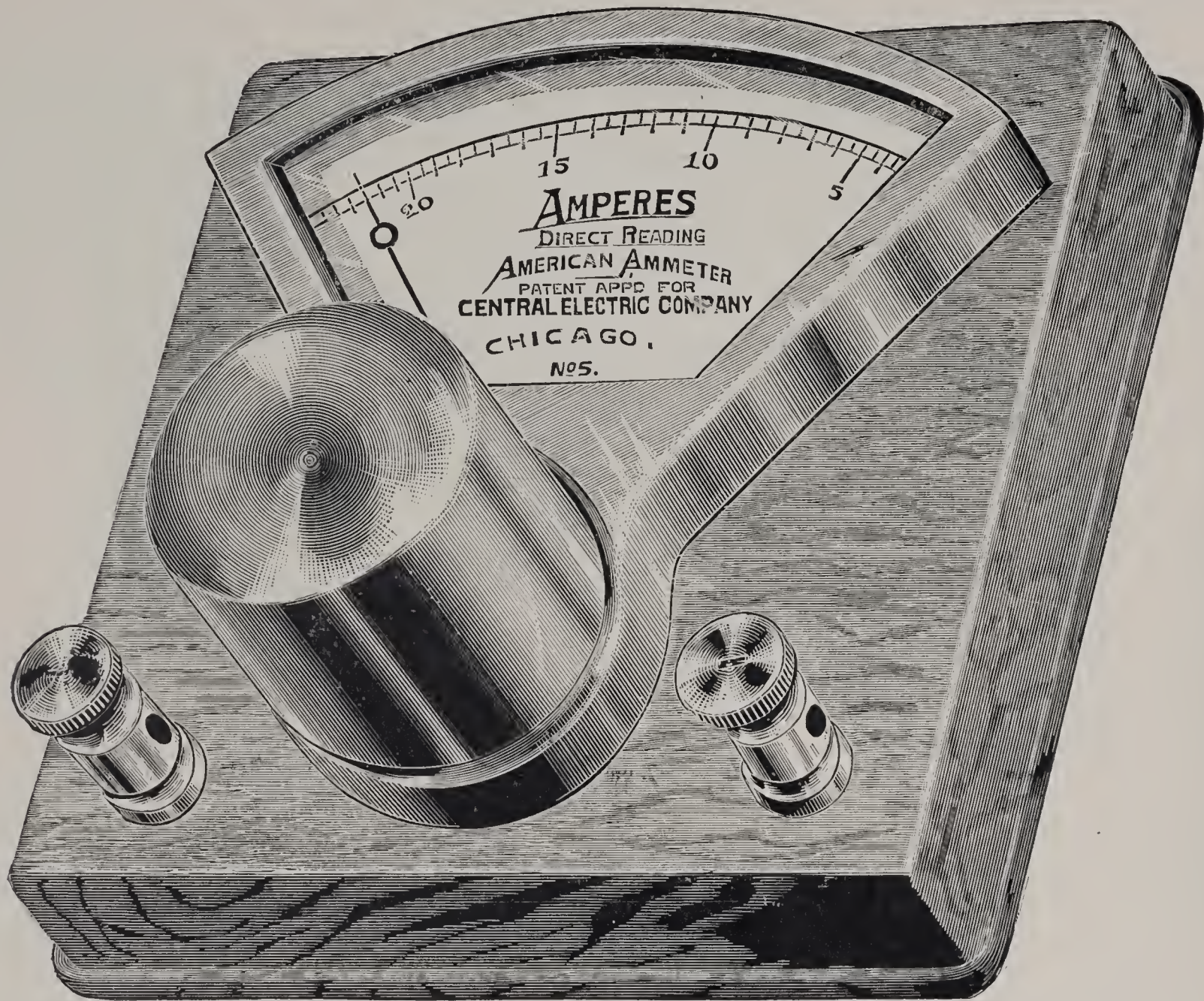
Elector.	Platinum	
	Silver Wire	
	Winding..	\$120.00
Electrify.	German Sil-	
	ver Wire	
	Winding..	90.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

THE AMERICAN AMMETER AND VOLTMETER.



These instruments combine the qualities of convenience, accuracy and durability, with simplicity and cheapness of construction. They are made on correct scientific principles, and have stood the severest tests that could be placed upon them by scientific experts, and have been pronounced “strictly accurate and thoroughly reliable.”

No permanent magnets are employed in these instruments. Only the softest, chemically purified and annealed iron is used in the magnets, and by an ingenious arrangement of the coil and iron persistent magnetism is reduced to a minimum, thereby securing the greatest possible accuracy.

The springs used are of the best steel, and aged, thus insuring permanency and reliability and requiring no recalibration. The hand is pivoted on polished steel needles, is very sensitive, and when set for any point will positively stop at the same point when at rest.

The American Voltmeter is similar in appearance to the Ammeter, and both are highly finished.

Trade Word.		Range.		AMMETER.	Price.
Elegance.	0 to	1	Ampères	.....	\$25.00
Elegant.	0 to	5	“	.....	25.00
Elegy.	0 to	20	“	.....	25.00
Element.	0 to	40	“	.....	25.00
Elemental.	0 to	100	“	.....	28.00
Elephant.	0 to	250	“	.....	28.00

Trade Word.		Range.		VOLTMETER.	Price.
Elevate.	0 to	3	Volts	.....	\$30.00
Elevated.	0 to	5	“	.....	30.00
Elevation.	0 to	120	“	.....	30.00
Elfish.	0 to	240	“	.....	35.00

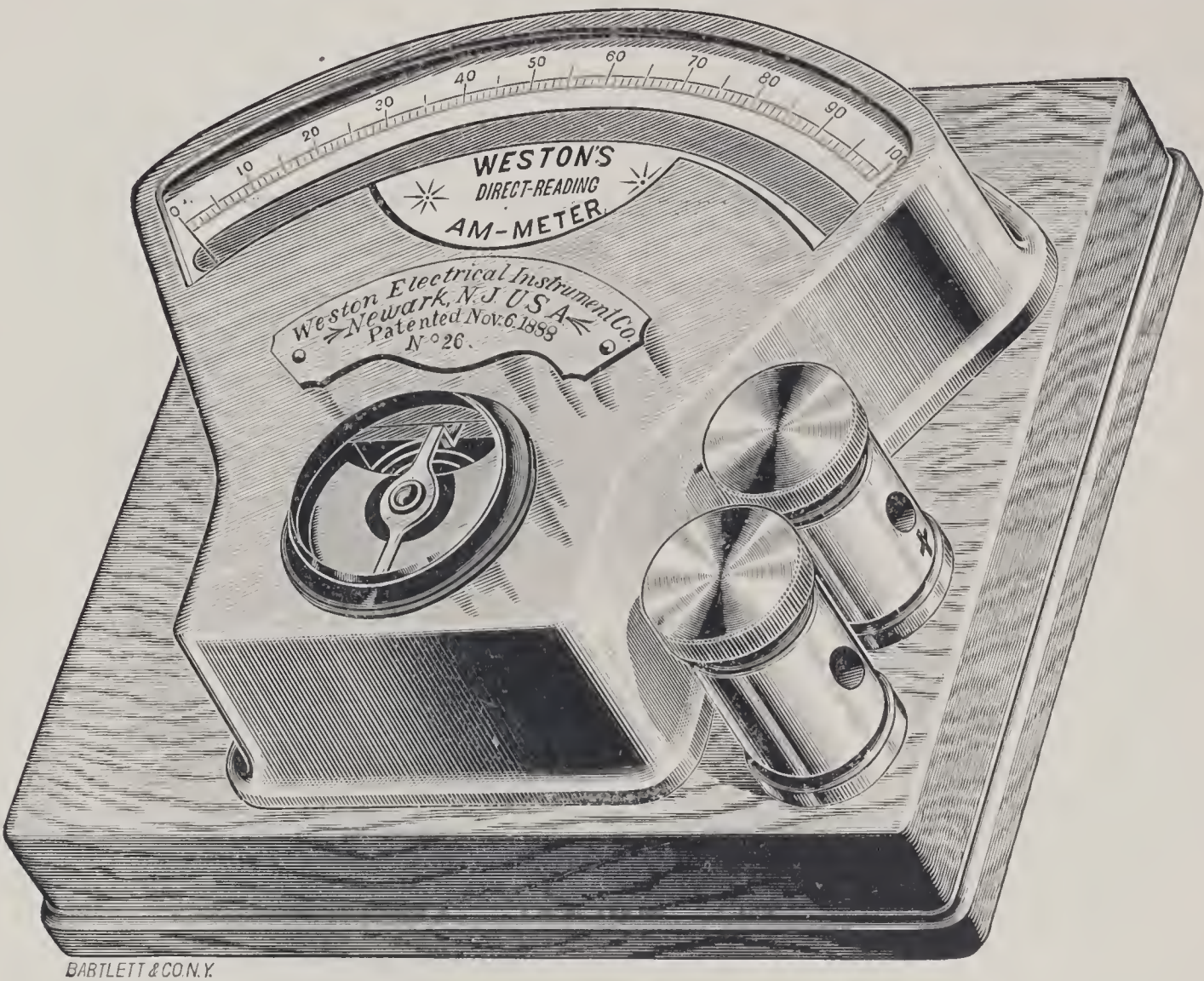
Instruments of higher readings made to order.

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

WESTON'S STANDARD DIRECT-READING MILLIAMMETERS AND AMMETERS



These instruments have the same general appearance as the voltmeters, and possess the same specific merits of permanency and accuracy.

The most reliable methods of standardizing by direct comparison with certified legal standards are used, and it is confidently asserted that these instruments will be found not only equal to the demands of commercial work, but also to the more rigid requirements of laboratory standards.

MILLIAMMETERS.

Trade Word.	Scale.	Price.
Elicit.	300 milli-amperes. ....	\$0.80
Eligible.	600       “       .....	.80

AMMETERS.

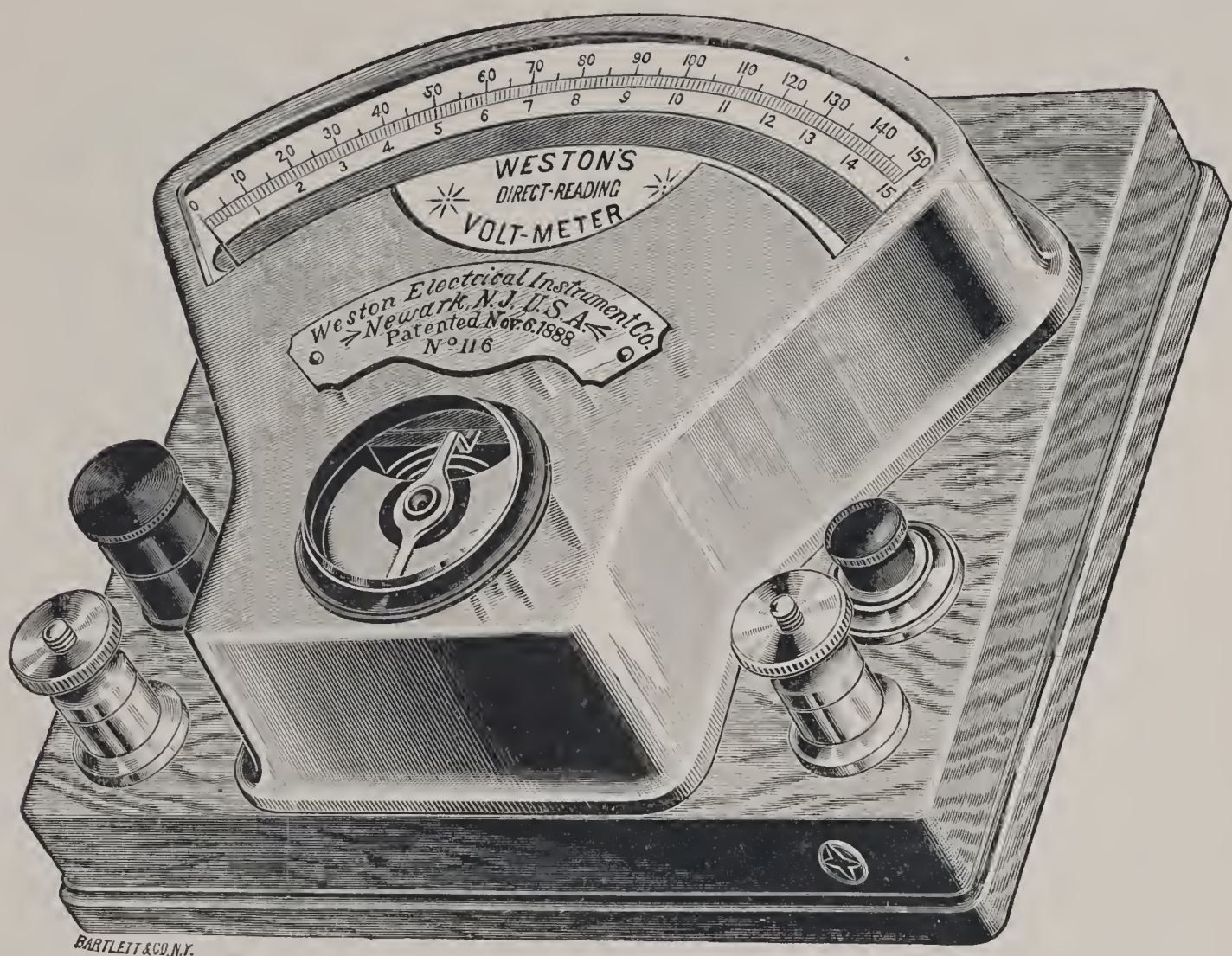
Trade Word,	Scale.	Price.
Eliminate.	5 amperes.....	each, \$80.00
Elite.	15       “       .....	“       80.00
Elixir.	25       “       .....	“       80.00
Elk.	50       “       .....	“       80.00
Elliptic.	100       “       .....	“       85.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

THE WESTON STANDARD VOLTMETER.



The cut exhibits the general appearance of the Standard Voltmeter, and is about one-half size. Three binding posts are shown (one on the left being rubber covered), connecting with two coils of different lengths and giving two grades of sensibility. By connecting the positive wire with the positive binding post and the negative wire with the other brass post, the reading indicates volts, as seen on the upper scale. Changing the negative wire to the rubber post brings the lower scale into use. The small push at the right is a key, and may be left closed permanently if desired. The readings are direct, and no multiplying constant is necessary.

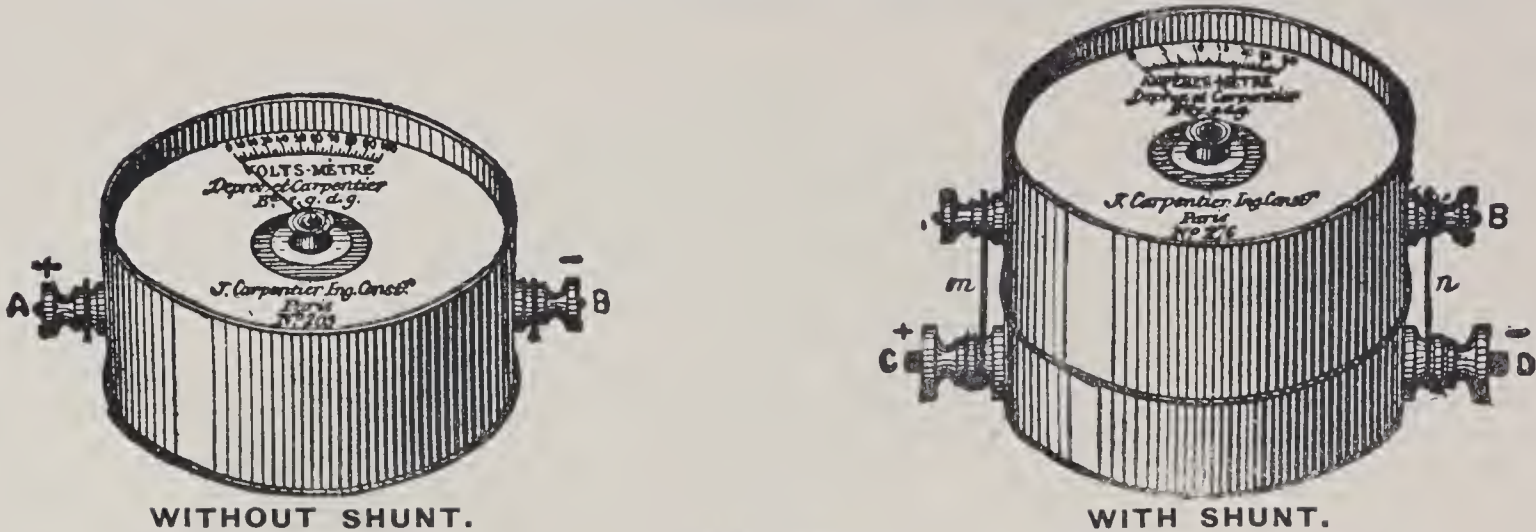
Trade Word.	Scale.	Price.
Elm.	0 to 150 Volts, one scale.....	\$70.00
Elongate.	{ 0 to 150 " } two scales.....	90.00
	{ 0 to 5 " }	
Elopement.	{ 0 to 150 " } two scales.....	90.00
	{ 0 to 15 " }	
Eloquence.	0 to 300 " one scale and calibrating coil.....	80.00
Eloquent.	0 to 450 " one scale and calibrating coil.....	85.00
Else.	0 to 600 " one scale.....	80.00
Elsewhere.	0 to 600 " one scale and calibrating coil.....	85.00
Elude.	{ 0 to 600 " } two scales.....	95.00
	{ 0 to 150 " }	
Emaciate.	{ 0 to 600 " } two scales.....	95.00
	{ 0 to 300 " }	

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

DEPREZ-CARPENTIER AMMETERS AND VOLTMETERS.



AMMETERS.

These instruments of Deprez-Carpentier are especially intended for practical use. They resemble in form the ordinary steam pressure gauge. The outside case is a cylinder  $4\frac{1}{2}$  inches in diameter, and  $2\frac{3}{4}$  inches in height. Each contains a needle of soft iron, movable on an axis in the interior of a coil of wire or ribbon connected to the two binding posts on the side. Two magnets in the form of a C, placed opposite each other, inclose the coil and needle between their poles.

The axis of the soft iron needle is also fastened to the aluminium indicating pointer, and the whole system is so balanced that the instrument can be employed in either a horizontal or vertical position, placed on a table, or hung against a wall.

The readings are direct, the numbers on the dial plate indicating the amperes or volts, without calculation or tables.

From their construction they are very dead beat, the needle coming to rest very quickly. The direction of the current is shown at the same time.

When the needle is deflected over the scale the current enters at the binding post marked +.

In the Ammeters the coil around the needle is composed of a few turns of thick copper wire or ribbon, the resistance of which is so small that the introduction of the instrument in a circuit has no appreciable effect, and the coil will not heat with its normal current. The Ammeter is put directly in the main circuit, so that the whole current to be measured passes through it.

VOLTMETERS.

In these the coil is composed of many turns of fine wire, the resistance of which is so high (1800 or 2000 ohms) that when placed in derived circuit the current it takes from the main circuit can be neglected.

The Voltmeter is put in derived circuit around that part of the main circuit in which it is desired to measure the fall of potential.

To measure the electro-motive force of batteries, shunt wound dynamos, etc., it is connected directly to the poles.

With both instruments care should be taken not to send more current or put in with higher electro-motive force than they are intended for. It is well to have a switch to throw the instruments out when not in use.

REDUCTEUR OR SHUNT FOR AMMETERS.

These Shunts have a resistance, which has a definite ratio to that of the ammeters, and are connected in multiple with the ammeters. By their use the readings can be largely increased.

REDUCTEURS OR RESISTANCES FOR VOLTMETERS.

These are connected in series with the voltmeters, and extend the range of the instrument.

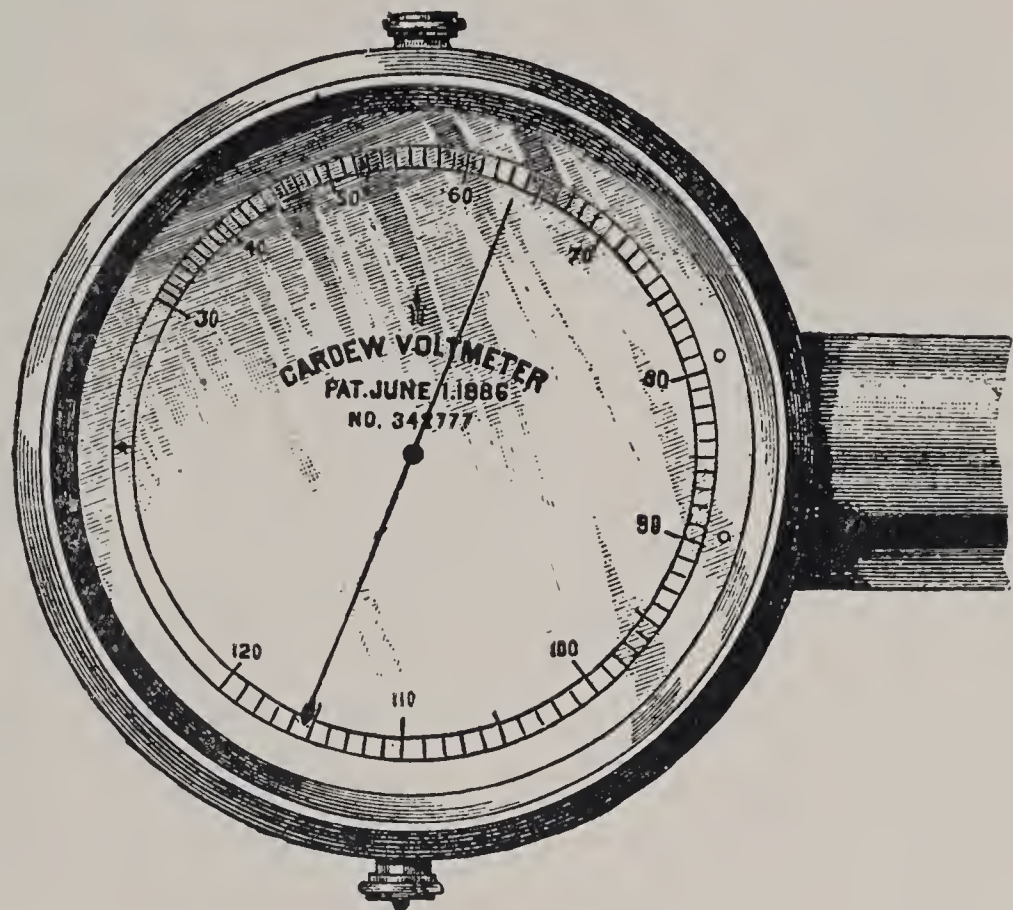
CARPENTIER'S AMMETERS AND VOLTMETERS.		Price.	
Trade Word.			
Emanate.	Ammeters, reading 0 to 2.....	each,	\$30.00
Emanated.	" " 0 " 5.....	"	30.00
Emanation.	" " 0 " 10.....	"	30.00
Emanating.	" " 0 " 15.....	"	30.00
Emancipate.	" " 0 " 25.....	"	30.00
Emancipation.	" " 0 " 50.....	"	30.00
Embalm.	" " 0 " 50, with shunt increasing reading to 100 amperes.....	"	40.00
Embankment.	" " 0 " 50, " " 150 ".....	"	45.00
Embargo.	" " 0 " 50, " " 200 ".....	"	50.00
Embark.	" " 0 " 300 amperes.....	"	62.50
Embarkation.	" " 0 " 400 ".....	"	65.65
Embarrass.	" " 0 " 500 ".....	"	75.00
Embarrassment.	" " 0 " 600 ".....	"	78.15
Embassy.	Voltmeters, " 0 " 100.....	"	40.00
Embedded.	" " 0 " 120.....	"	40.00
Embellish.	" " 0 " 100, with resistance increasing reading to 200 volts.....	"	55.00
Embers.	" " 0 " 100, " " 300 ".....	"	57.50
Embezzle.	" " 0 " 100, " " 400 ".....	"	50.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

CARDEW VOLTMETERS.



The advantages of this instrument over other Potential Meters are: It is equally serviceable for *Direct* and *Alternating* currents.

It is adjusted and calibrated once for all, is perfectly constant, and never requires recalibration. The instrument can be kept in circuit continuously, and is the only one made which can be so used. It can be safely used close to the most powerful dynamo, as it has no magnets or coils.

For the same reason it has no self-induction, and requires no correction co-efficient for earth's magnetism.

It is quite dead beat and instantly responds to trifling changes of current.

Trade Word.			Price.
Embezzlement.	10 to 60 Volts	.....	\$81.25
Embezzling.	20 to 80 “	.....	81.25
Emblazon.	30 to 120 “	.....	81.25
Emblazonry.	30 to 150 “	.....	93.75
Extra Resistance Tubes for higher readings.....			20.25
Thumb Screw to adjust zero from outside of case .....			7.50

This instrument consists of a long, fine wire, stretched from a fixed point at one end to a spring at the other, and passing round an arbor carrying an index at a point near the spring, the wire being supported by and inclosed in a tube having the same co-efficient of expansion for temperature as itself. The ends of the wires are connected to terminals. When the terminals are connected to any two points in a circuit, between which there is a difference of pressure, a current flows through the wire, which is thereby heated and expanded; the expansion being taken up by the spring, the index is rotated by an amount depending on the expansion; but, the expansion being proportional to the temperature of the wire, and the latter depending on the pressure, in effect the deflection of the index depends on the pressure.

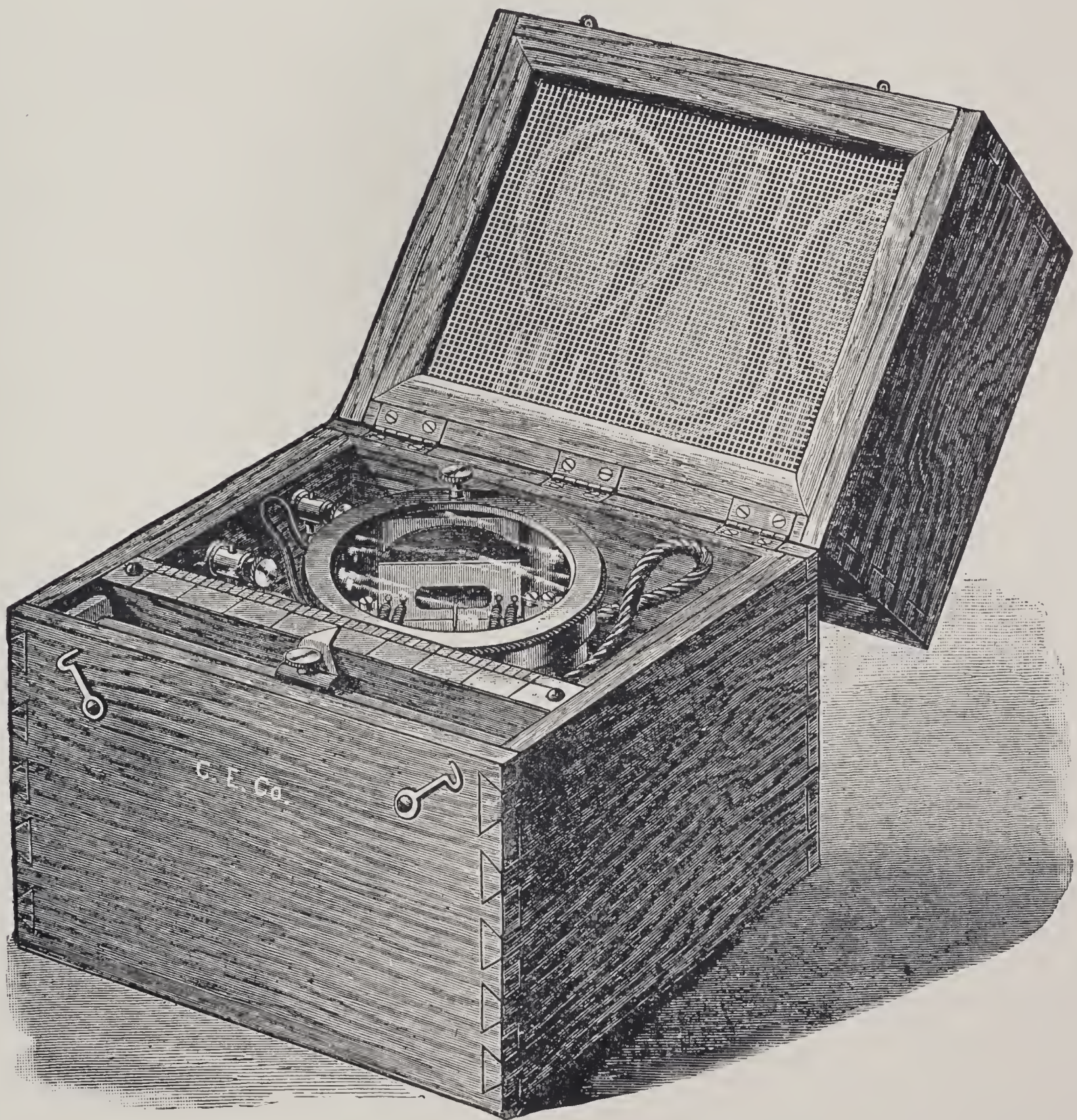
For Explanation of Trade Word see page 4.



## TEST INSTRUMENTS.

### PORTABLE VOLTMETER FOR ALTERNATING CURRENTS.

RANGE FROM 45 TO 60 VOLTS.



Trade Word.

Emblem. .... each, \$75.00

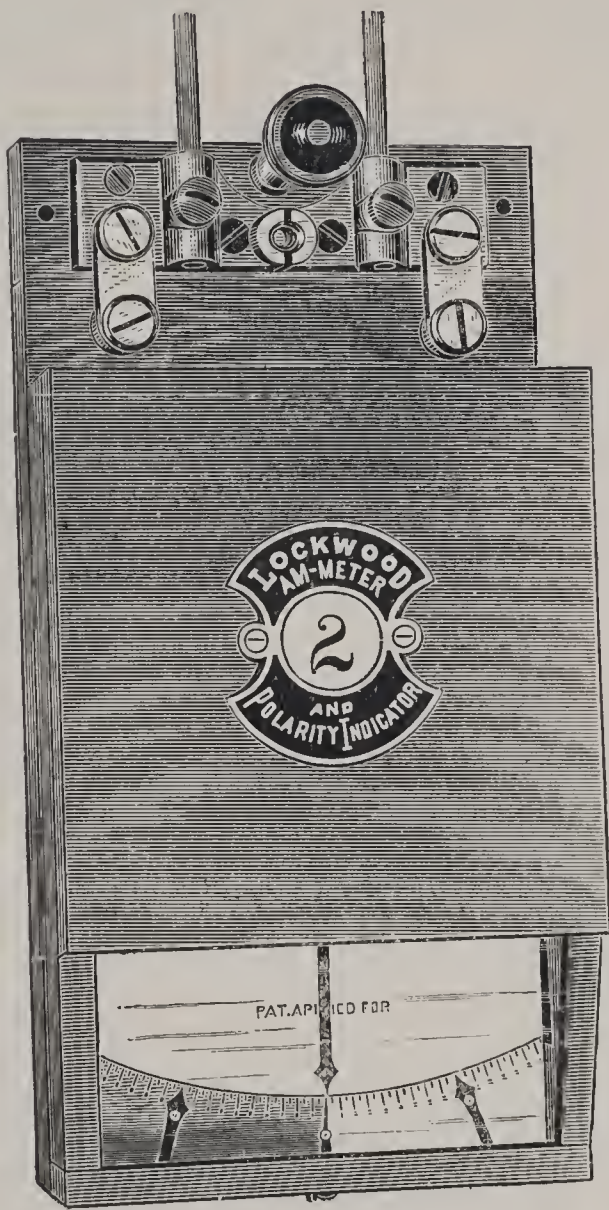
Price.

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

LOCKWOOD AMMETER AND POLARITY INDICATOR.



This instrument is designed to be a practical indicator of the strength of the current, and is meant to be to the dynamo tender what the steam gauge is to the engineer. The small pointers below the scale indicate the points at which the current is normal, and any deviation above or below them by the upper needle indicates that the current is too high or too low. By having one half of the scale colored a glance will show whether a positive or negative current is going out. At the top of the instrument is a cut-out by which the circuit may be kept closed while the instrument is removed, if necessary. The name-plate on the front of the case has an opening in which the number or name of the circuit may be placed.

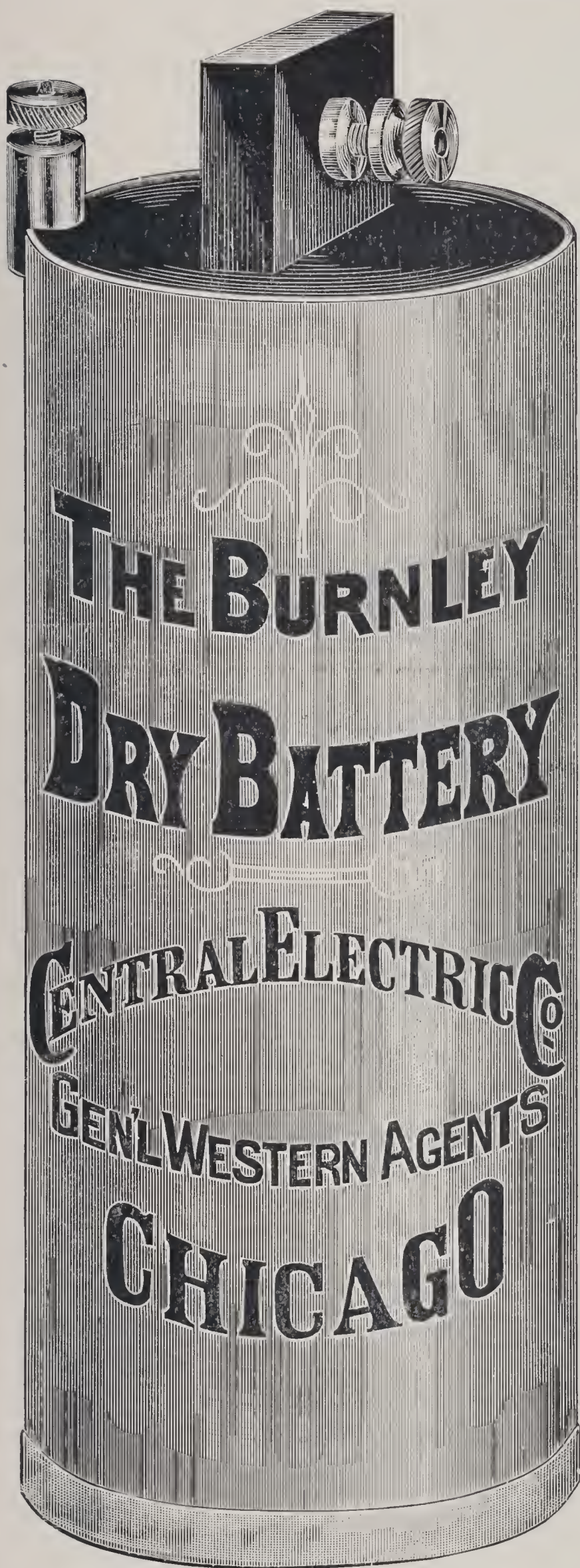
Trade Word.	Price.
Emblematic.....	each, \$15.00

For Explanation of Trade Word see page 4.



## TEST INSTRUMENTS.

## THE BURNLEY DRY BATTERY.



This Battery is meeting with great favor throughout the country, and on account of its portability, cleanliness and thorough effectiveness, is bound to displace every other dry battery in the market. The dimensions of the cell are: height  $6\frac{3}{4}$  inches, and diameter  $2\frac{1}{2}$  inches. The cell is, therefore, slightly smaller than the cut.

We do not hesitate to recommend this Battery for all kinds of open circuit work.

On account of its compactness and perfect reliability this Battery is specially adapted to station testing, and many electricians have displaced fluid batteries for the Burnley. We are General Western Agents, and can always furnish renewals on very short notice.

Trade Word.

Emblematize..... Price.  
per cell, \$1.00

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

CHLORIDE OF SILVER TEST BATTERY.

Each instrument consists of a number of Chloride of Silver dry cells, hermetically sealed, arranged in series, and encased in a japanned metallic box to themselves, leaving nothing exposed but the connecting pins and nuts securing them to box-top, as shown in cut No. A, which represents the inner, removable, cell case of a galvanic, constant current, battery.

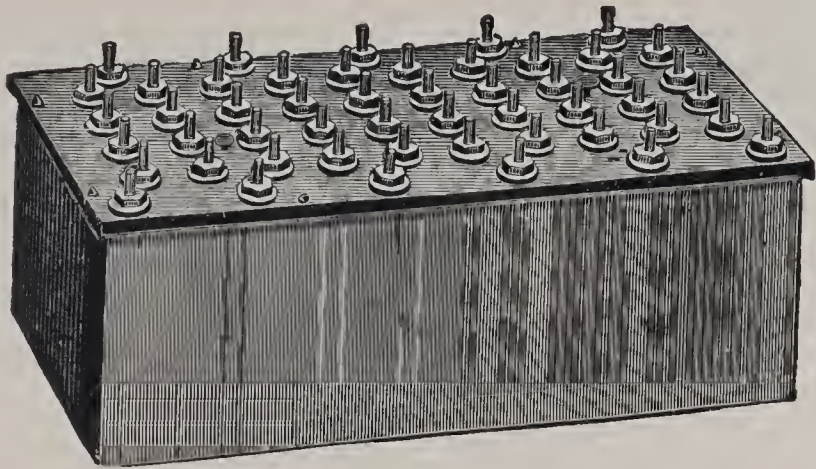


FIG. A.

When the elements are exhausted, this metal case and contents is the part which is renewed—a matter of mere exchange of one set of elements for another; so simple that no time is lost, and labor greatly economized thereby. The cost of renewal is but 50 cents for each galvanic cell.

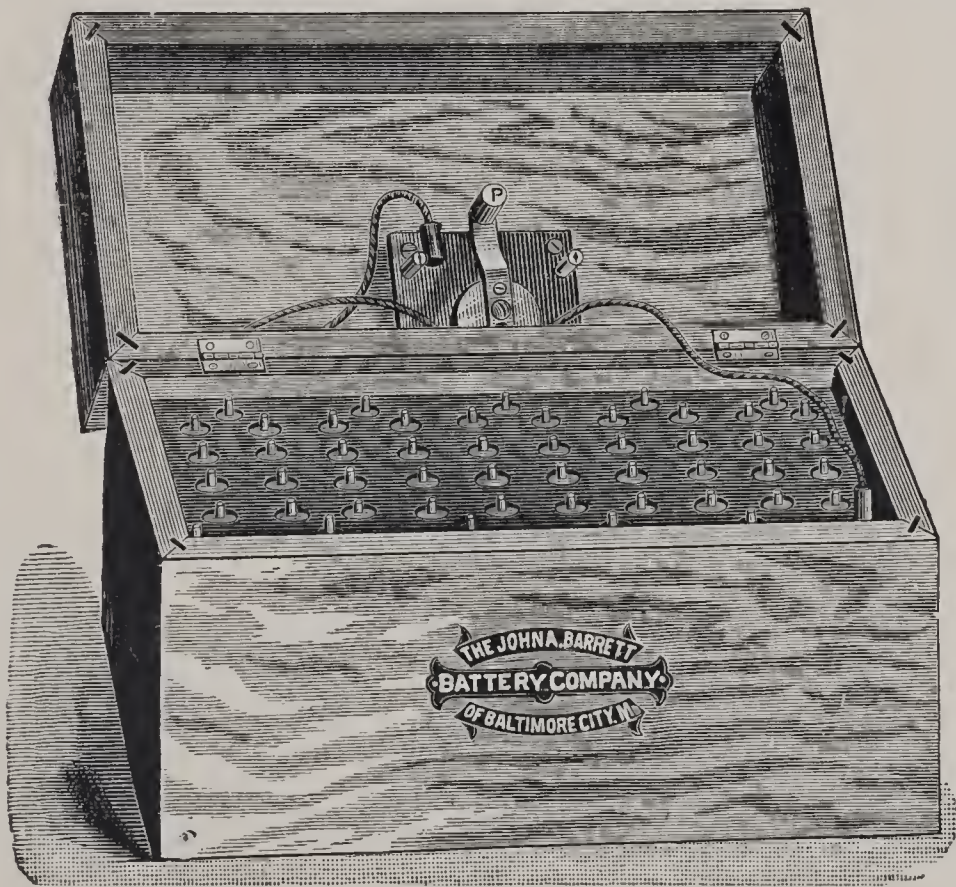


FIG. B.

These inner cell cases are now placed in hard wood handsomely finished and polished outer battery boxes, from which they can be readily removed at any time by lifting studs; and are finally covered by loose, hard rubber plates, through which the connecting pins themselves alone project. Each of these top plates is regularly numbered from 0 up to total number of cells in the battery.

Cut B above shows complete battery as described; box open, ready for work.

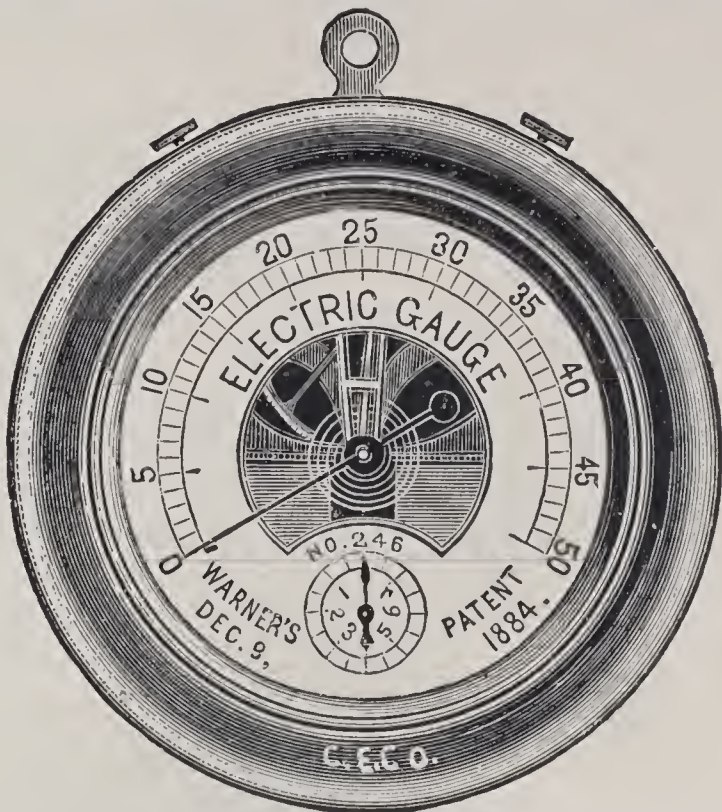
Trade Word.		Price.
Embody.	50 cells.....	\$85.00
Embolden.	32 “ .....	65.00
Embosom.	24 “ .....	58.00
Emboss.	Extra cells .....	1.50

For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

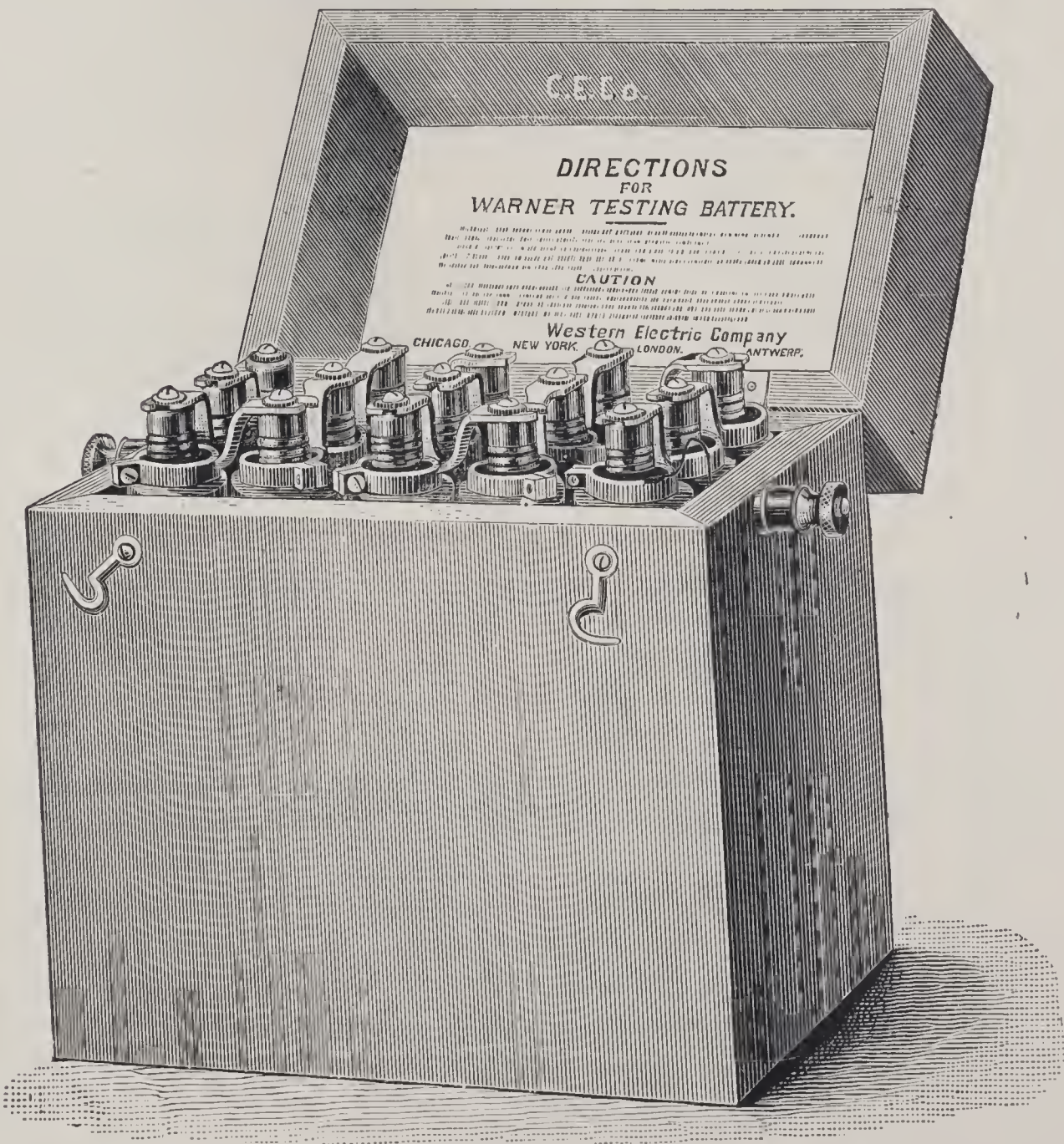
WARNER ELECTRIC GAUGE FOR TESTING BATTERIES.



This Gauge is valuable for testing single cells of a battery. In case of an exhausted or feeble current, touch the terminals of the Gauge to those of each cell and its condition will be shown at once. It can be carried in the pocket, and is intended for the use of inspectors in their daily rounds.

Trade Word.	Price.
Embossed.....	\$18.00

WARNER TESTING BATTERY.



This Battery is especially designed for use with the "Combination Bridge, Rheostat and Galvanometer." Compact, light, yet of substantial construction, it is particularly suitable for the use of line inspectors on either electric light, telephone or telegraph circuits. The cells are of such form as to entirely prevent local action, and with ordinary care and usage do not require frequent renewal.

Trade Word.	Price.	Trade Word.	Price.
Emboss. 15 cell battery.....	\$20.00	Embrace. 25 cell battery.....	\$32.00
Embossing. 20 " " .....	25.00		

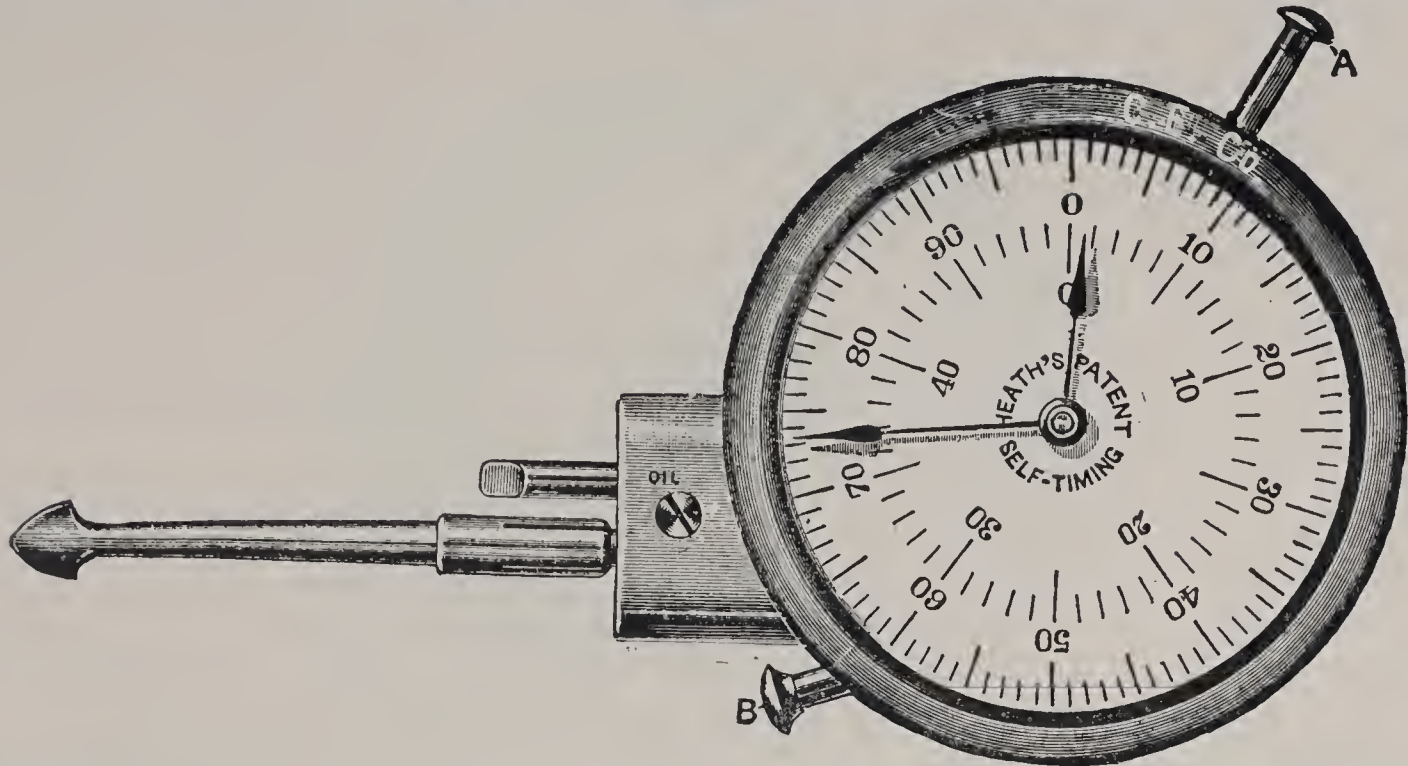
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

SPEED INDICATORS.

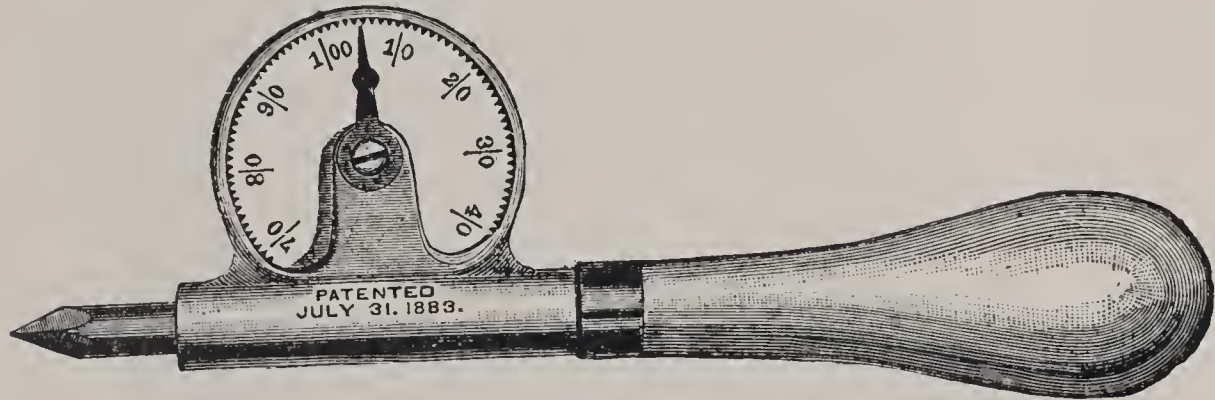
HEATH'S PATENT SELF-TIMING AND SELF-REGISTERING SPEED INDICATOR.



Is provided with a half-minute time movement, which is started by pressing upon a spring after the point has engaged with the shaft; at the expiration of a half minute the hands stop, leaving a full minute record on the dial.

Trade Word. Price.  
Embracing ..... each, \$25.00

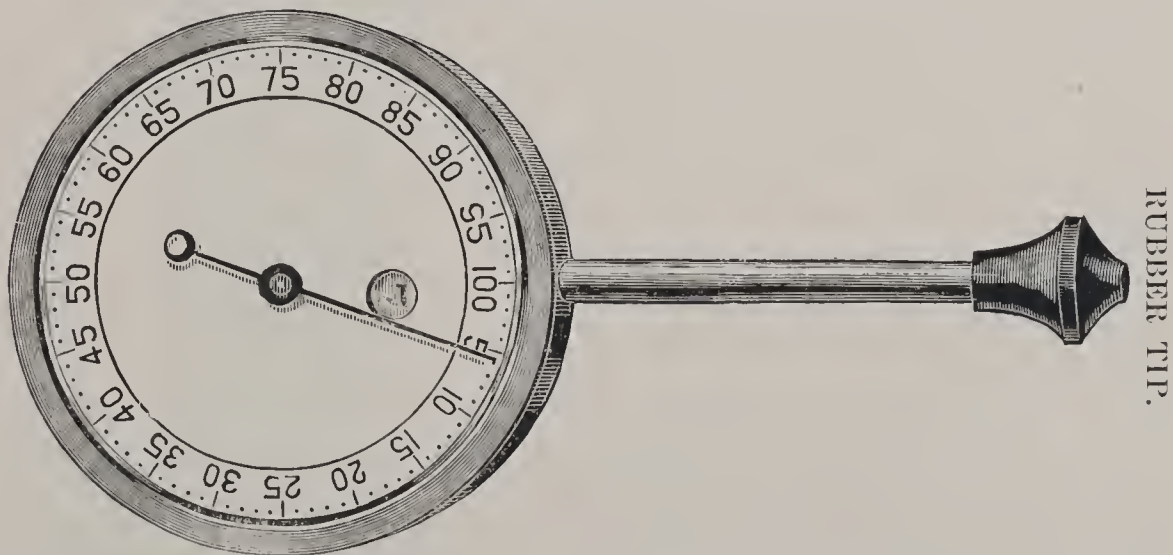
FOWLER SPEED INDICATOR.



Simple, accurate, and not liable to get out of order. Moves 5,000 revolutions either right or left.

Trade Word.	Price.	Trade Word.	Price.
Embrasure. ....	each, \$2.50	Embroglio. Extra points. ....	\$0.75

LIGHTNING SPEED INDICATOR.



It registers as high as 1,000, as seen by the cut, which is actual size. The body constitutes the handle. Has a rubber tip on the spindle, a silver-plated dial and the face covered with a watch crystal. Will stand over 15,000 rotations per minute. To suit the requirements, we make the spindle so as to give three lengths—1, 2 and 3 inches. For all practical purposes, this is believed to be sufficient; the spindle can, however, be made any desired length for SPECIAL purposes.

Trade Word. Price.  
Embroider. .... \$3.00

For Explanation of Trade Word see page 4.



# TEST INSTRUMENTS.

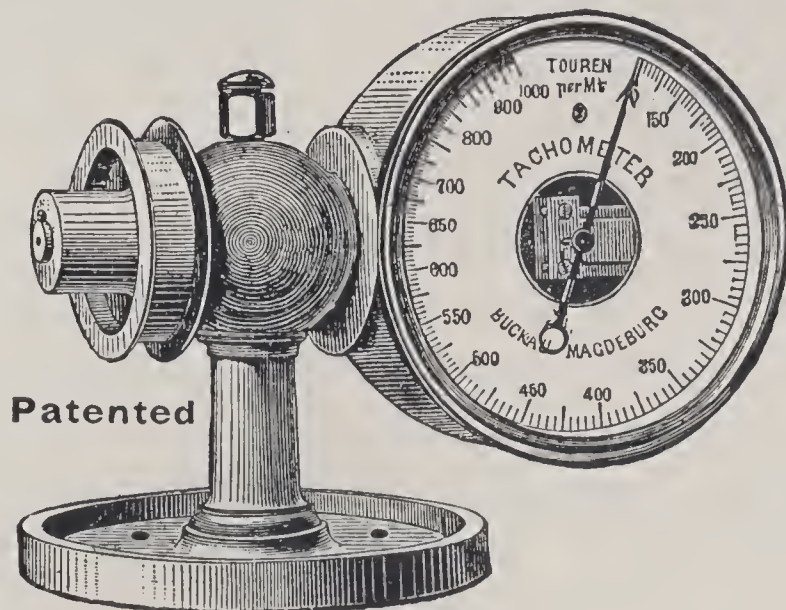
## SPEED INDICATORS—Continued.

### TACHOMETERS.

Especially adapted for Dynamos and High Speed Engines.

#### STATIONARY TACHOMETER.

For permanent attachment. Tells at a glance the speed at which you are running.



Its construction is based upon centrifugal power, and it consists of a case in which are mounted a pendulum ring in connection with a fixed shaft, a sliding rod and indicating movement. The fixed shaft has a pulley to convey motion to the pendulum ring, and subsequently by the sliding rod to the indicating movement. The dial shows the exact revolutions per minute.

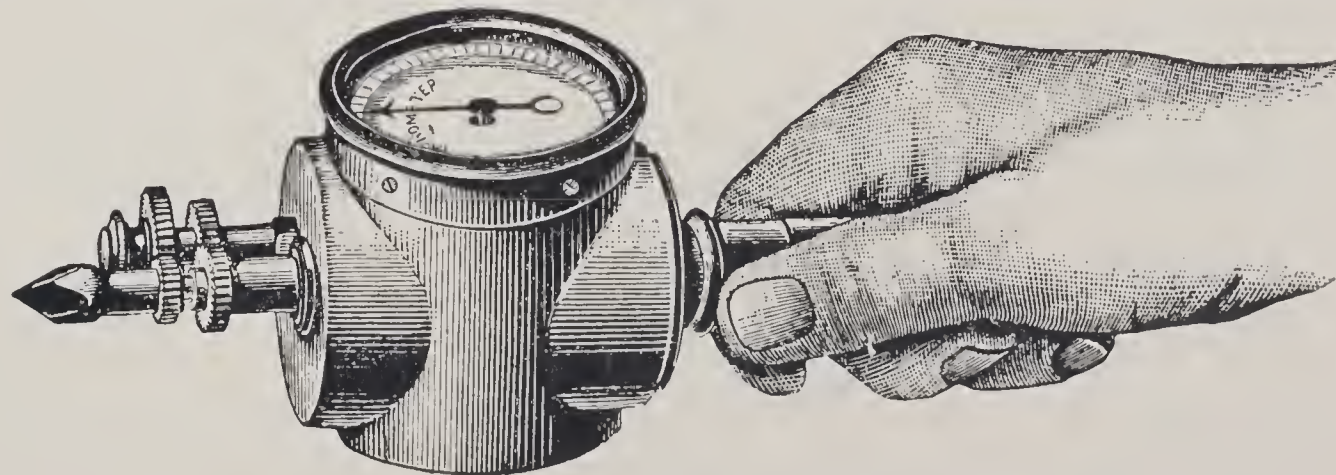
The apparatus is made for various speeds up to 2,000 revolutions, and higher. It is very sensitive, and will indicate the slightest deviation in speed. It is important, however, that the driving belt should be smooth, and the joint made without lapping. The diameter of driving pulley is marked on dial.

The motion can be in either direction, and the apparatus placed in a vertical or horizontal position, or at any desirable angle between these positions.

Trade Word.		Price.
Embroid.	Small size, with scale of $5\frac{1}{2}$ inches diameter.....	\$50.00
Embryo.	Large “ “ “ $7\frac{1}{2}$ “ “ .....	55.00

In ordering, please state the approximate number of revolutions to be indicated.

#### THE PORTABLE TACHOMETER, For High Speed Engines, Dynamos, &c.



Similar in construction to our large-sized Stationary Tachometer for permanent attachment. It indicates **instantaneously** and **correctly** revolutions per minute. Dial for 1,000 revolutions, but with it are furnished two sets of geared wheels, in proportion of 1 to 2, for reducing to 500 or increasing to 2,000 revolutions. These wheels are easily attached to an arbor with locknut provided for that purpose. It has provisions for taking up lost motion when necessary.

**DIMENSIONS.**—Diameter of dial,  $2\frac{1}{2}$  inches; depth of case, 3 inches; entire length, including handle,  $8\frac{1}{2}$  inches. Total weight, including case, 5 lbs.

Trade Word.		Price.
Emerald.	Nickel plated, in morocco case.....	\$60.00

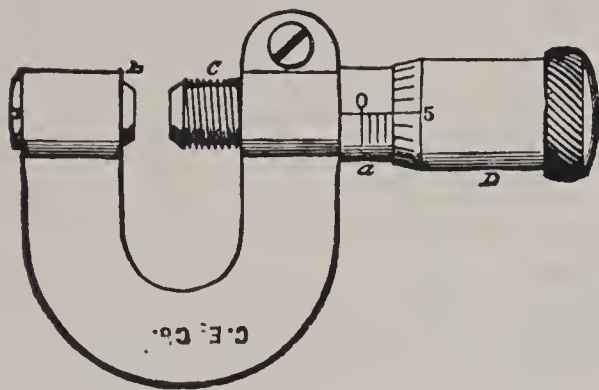
For Explanation of Trade Word see page 4.



TEST INSTRUMENTS.

MICROMETER CALIPERS.

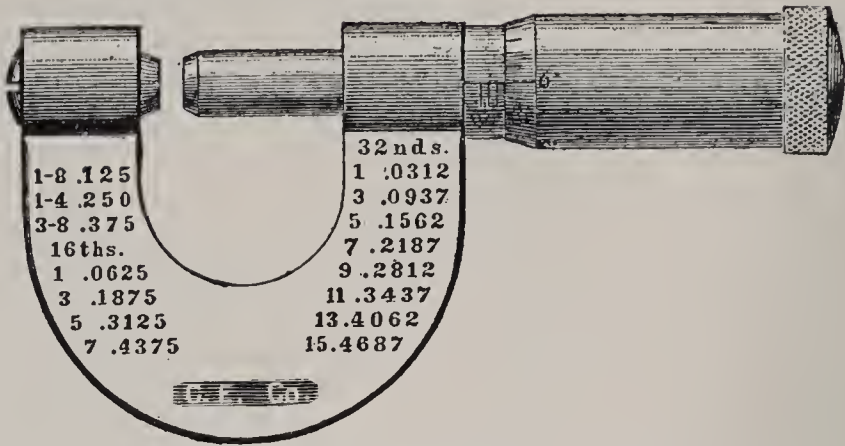
No. 1.



Measures from .001 to .3 inch.

Trade Word.	Price.
Emerge.....	\$4.00
Emergency. With morocco case.....	4.50

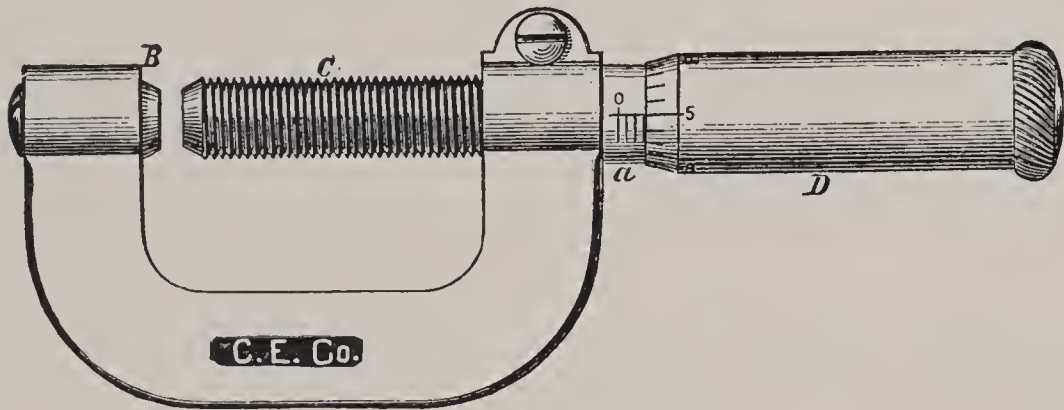
No. 2.



Measures from .001 to .5 inch.

Trade Word.	Price.
Emerging.....	\$4.50
Emersion. With morocco case.....	5.00

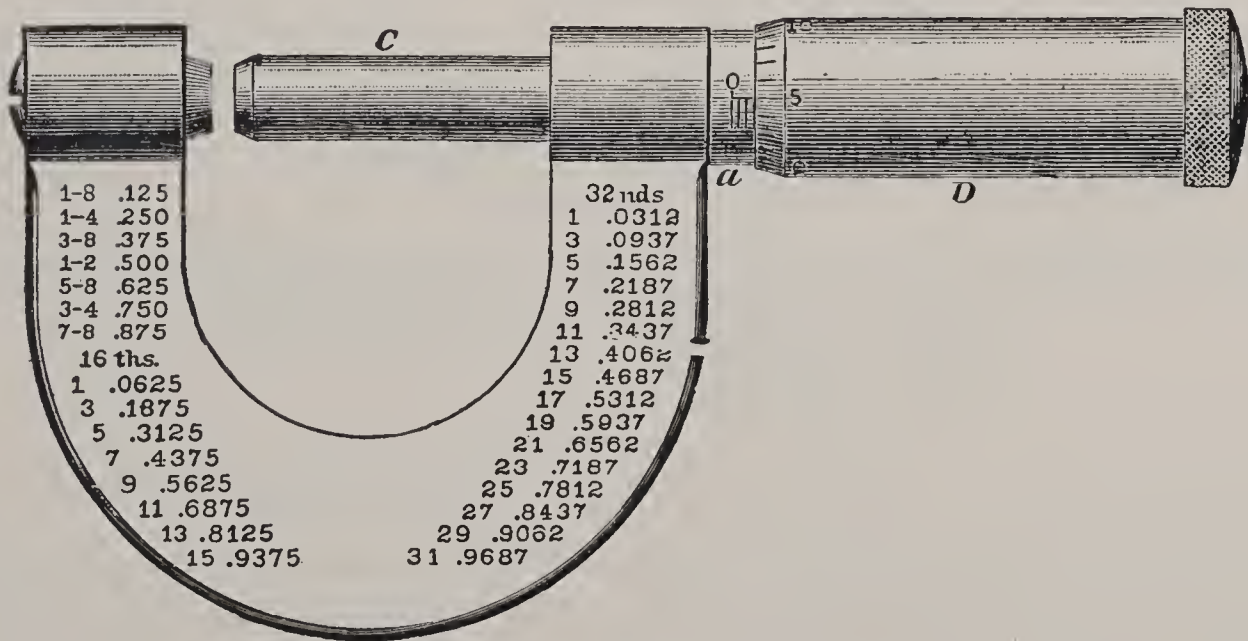
No. 8. FULL SIZE.



Measures from .001 to 1 inch.

Trade Word.	Price.
Emetic.....	\$4.50
Emigrant. With morocco case.....	5.00

No. 15.



Measures from .001 to 1 inch.

Trade Word.	Price.
Emigrate.....	\$5.00
Emigration. With morocco case.....	5.75

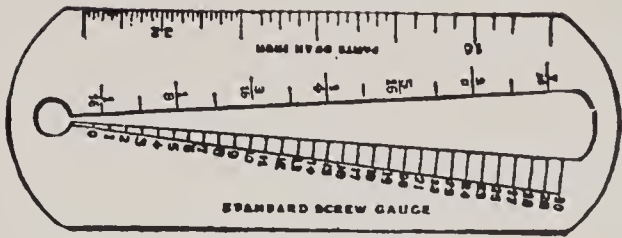
For Explanation of Trade Word see page 4.



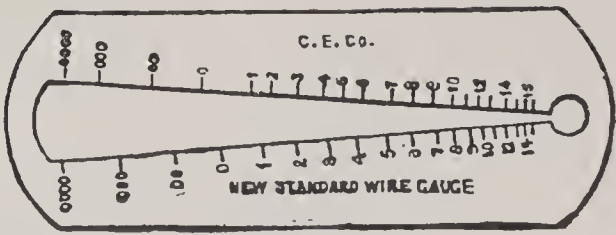
TOOLS.

WIRE GAUGES.

POCKET SCREW AND WIRE GAUGE.



FRONT SIDE.



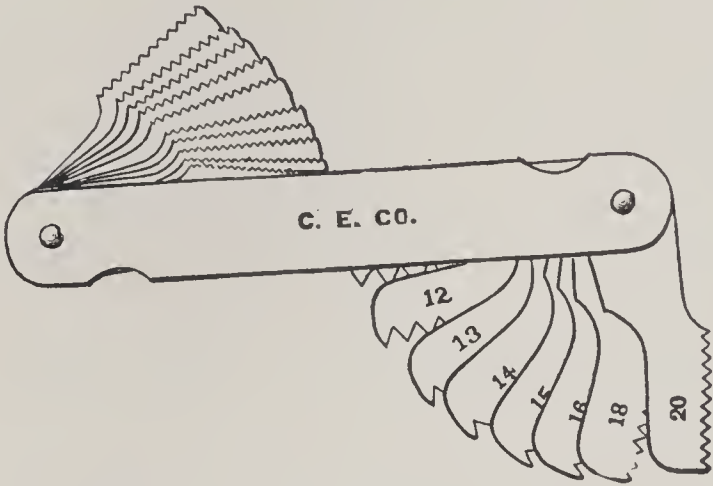
REVERSE SIDE.

On one side is a gauge for all sizes of screws and a rule for measuring the length of screws. The other side gauges all sizes of wire, by both American and English gauge, from 0000 to 17.

Trade Word.  
Eminence.....each, \$2.50

Price.

PATENT SCREW THREAD GAUGE.



Can be used both inside and outside on screw threads for determining the number of threads to the inch.

Trade Word.  
Eminent.....each, \$1.00

Price.

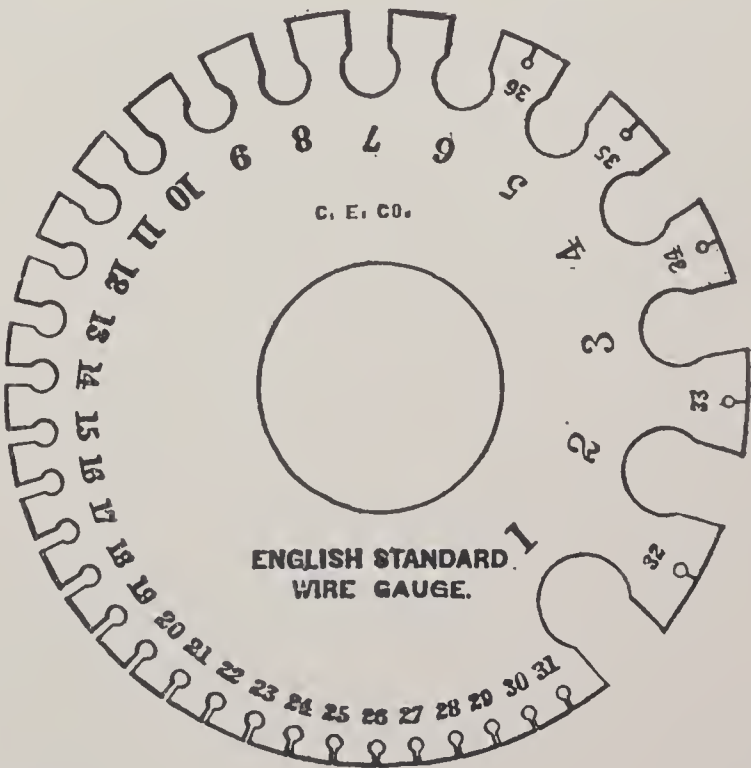
AMERICAN STANDARD WIRE GAUGE.



Trade Word.  
Emissary. 0 to 36.....\$3.00  
Emission. 5 " 36.....2.50

Price.

ENGLISH STANDARD WIRE GAUGE.



Trade Word.  
Emit. 1 to 36.....\$2.00  
Emitted. 6 " 36.....1.50

Price.

For Explanation of Trade Word see page 4.



## ELECTRIC RAILROAD SUPPLIES.

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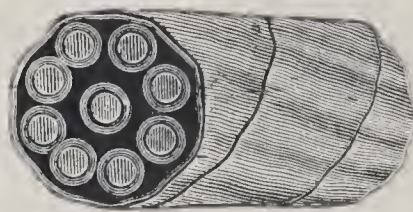
THE articles listed under this head are exclusively Electric Railroad Supplies; and in the preceding pages will be found listed the various articles that go into the construction, and would be needed for the maintenance, of an Electric Railroad. We shall from time to time issue circulars pertaining to specialties for this department, which will be mailed to persons having our catalogue. These circulars will be so arranged that they can be pasted into the catalogue in the proper place, so that the same may be kept in a complete condition.



ELECTRIC RAILROAD SUPPLIES.



OKONITE CAR CABLE.



This Cable is made up of nine strands of No. 9 B. & S. gauge Okonite wire, and wound with our standard Okonite covering. It is very flexible, and is absolutely moisture and gas proof. The insulation does not deteriorate or crack when used in extreme heat or cold. This insulation has been adopted by all of the leading car builders and electric railroads in the United States.

Trade Word.	Price.
Fable.....	per foot, \$0.75

Any size or style made to order on short notice.

TROLLEY LINE BREAKER.

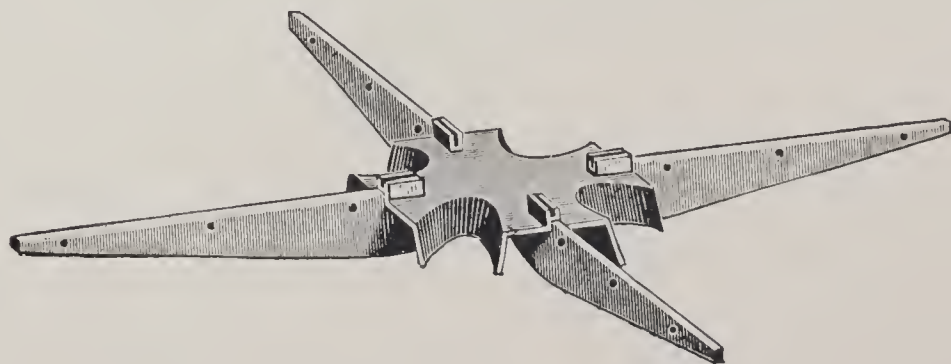


CRAWFORD'S PATENT. (Standard.)

Trade Word.	Price.
Fabric.....	each, \$10.00

Easily adjusted, perfect in application.

OVERHEAD CROSS-OVERS.



Trade Word.	Price.
Fabulous. Right Angle .....	each, \$10.00

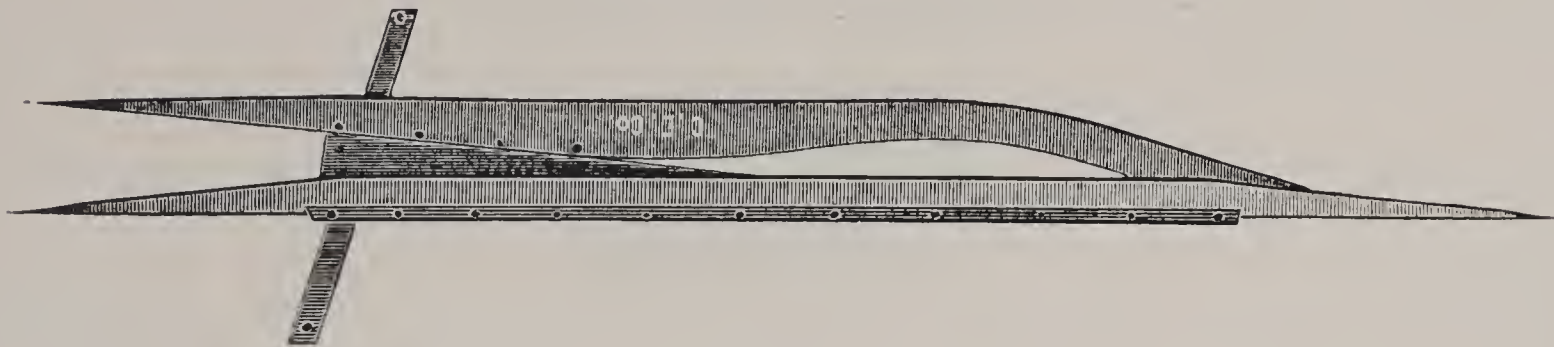
For Explanation of Trade Word see page 4.



ELECTRIC RAILROAD SUPPLIES.

ATKINSON OVERHEAD SWITCH.

SIMPLE, EFFECTIVE.

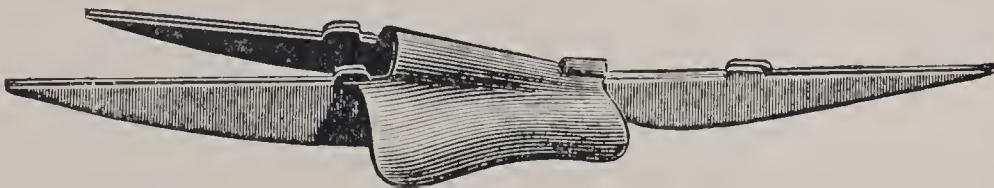


PATENTED.

The Atkinson Overhead Switch is the only reliable device by which turnouts can be taken with absolute certainty, at ordinary running speeds, without conductor or driver having to manipulate the trolley. The Atkinson Switch is positive in its action, independent of which track the car may take. Made either for right or left hand turnouts.

Trade Word.	Price.
Face .....	\$8.00

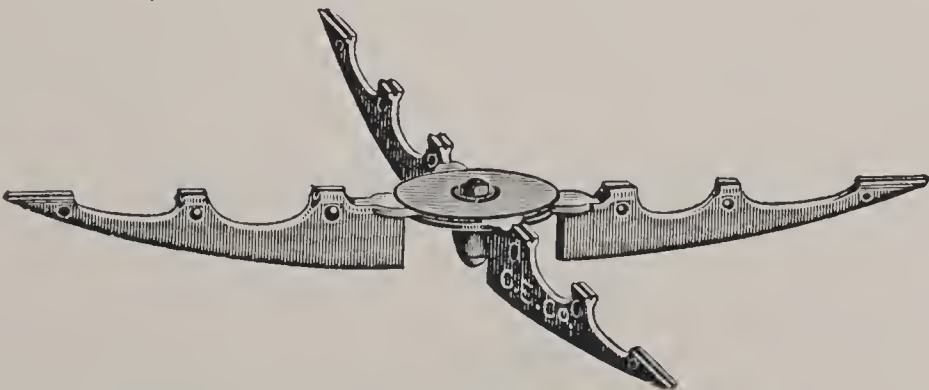
EMMET OVERHEAD SWITCH.



Made in right hand, left hand and Y turnouts. Highly recommended and perfectly reliable.

Trade Word.	Price.
Facile .....	\$10.00

RAMSAY ADJUSTABLE CROSS-OVER.



This Cross-over can be changed to any desired angle in a moment's time, but cannot get out of order when so placed.

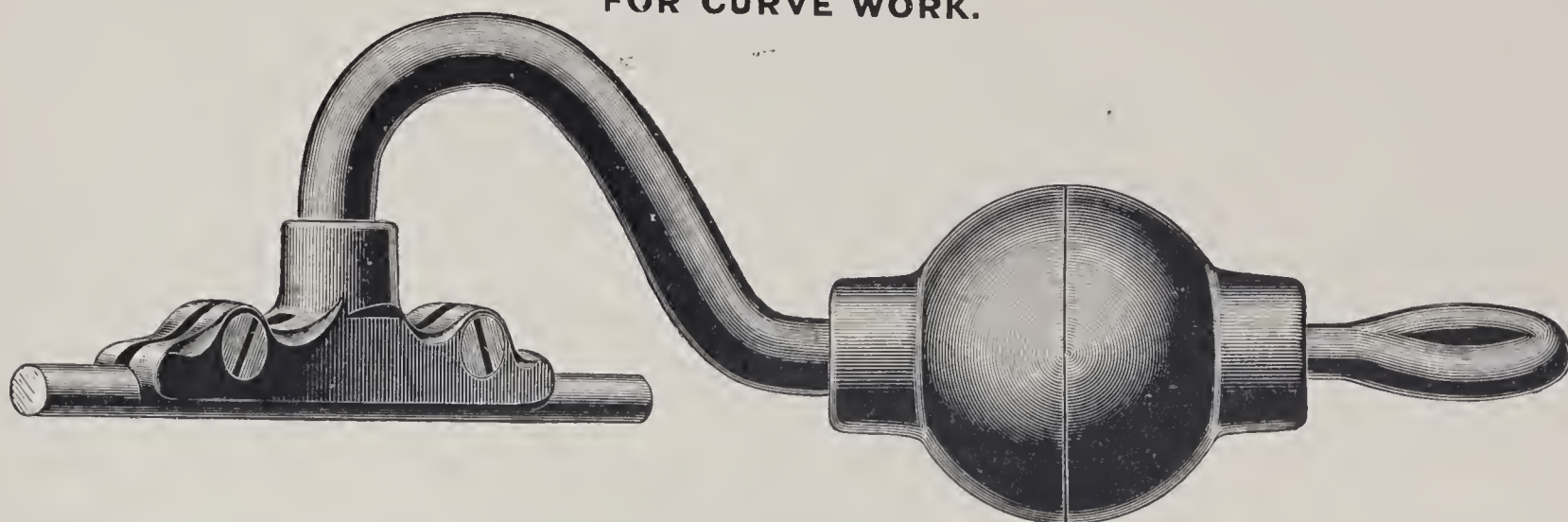
Trade Word.	Price.
Facility .....	each, \$12.00

For Explanation of Trade Word see page 4.



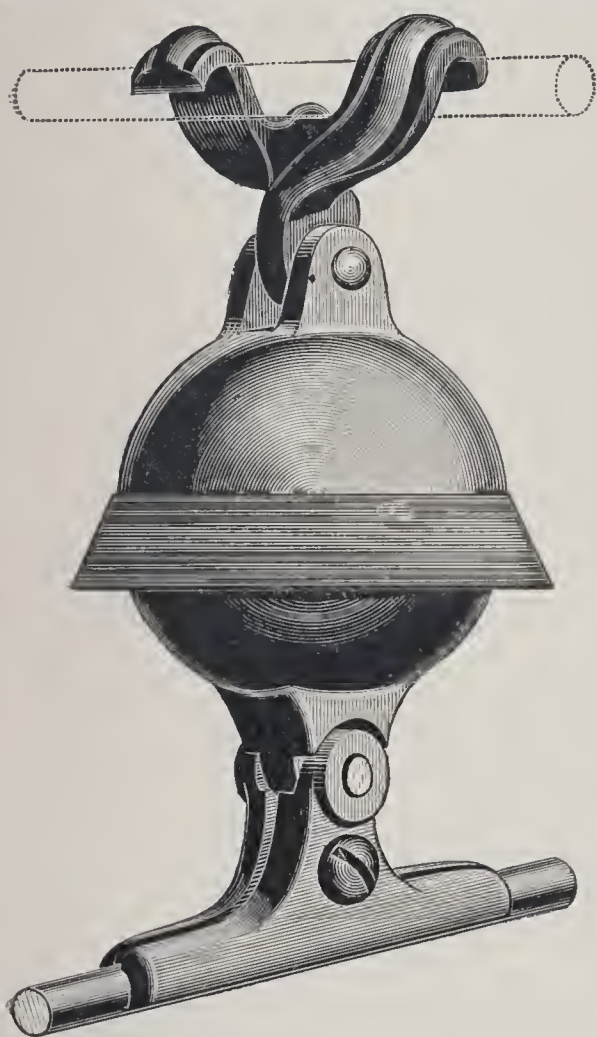
# ELECTRIC RAILROAD SUPPLIES.

## COMMON'S TROLLEY WIRE INSULATORS. FOR CURVE WORK.



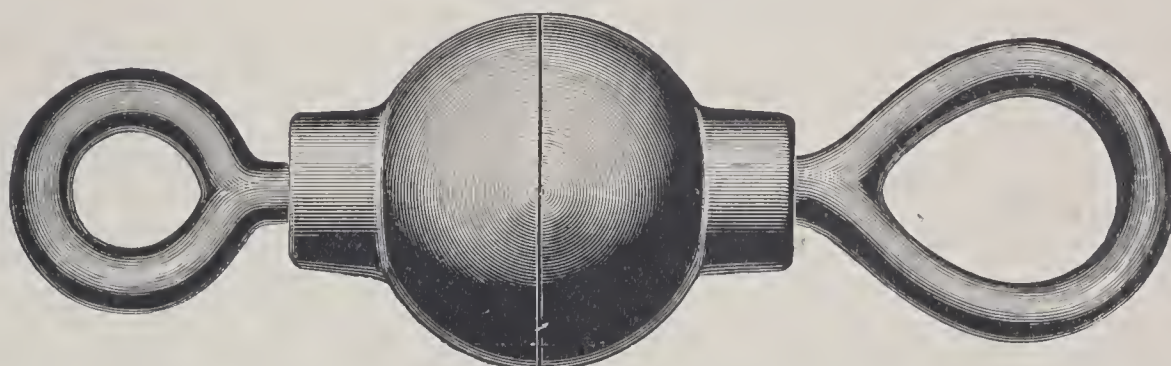
Trade Word. Patent applied for. Price.  
Faction ..... each, \$1.50

## COMMON'S TROLLEY WIRE INSULATORS. FOR STRAIGHT LINE WORK.



Patent applied for.  
Trade Word. Price.  
Factor ..... each, \$1.50

## STRAIN INSULATOR.



Trade Word. Patent applied for. Price.  
Faculty ..... each, \$1.50

These insulators are the simplest and most effective in use, soldering being entirely dispensed with, and the insulator attached with little or no labor. This is in marked contrast to those forms which require solder, necessitating the labor of several men, and consequent expense.

## BELLS.



Made of Hard Rubber.

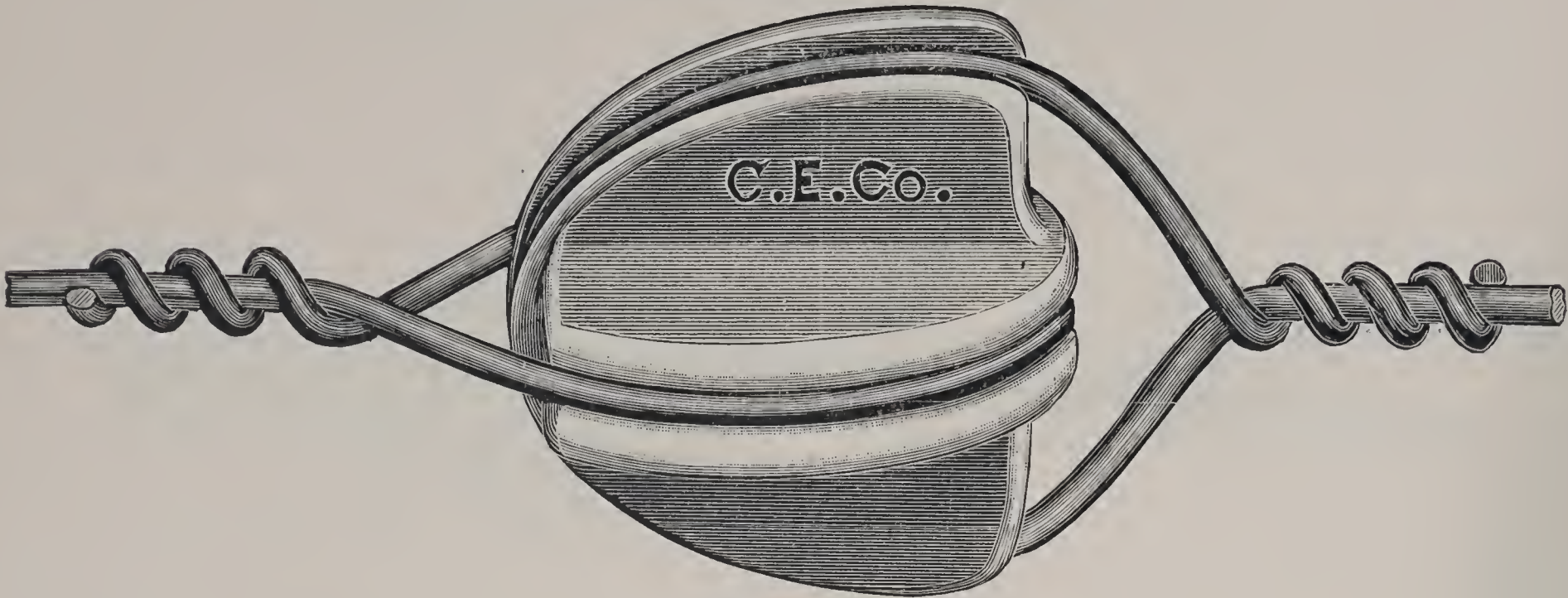
Trade Word. Price.  
Faded ..... each, \$0.60

In ordering state size of clamp and style of insulator wanted.

For Explanation of Trade Word see page 4.



**ELECTRIC RAILROAD SUPPLIES.**  
**THE BAIN BREAK INSULATOR.**



**CUT FULL SIZE.**

This insulator is especially designed to insulate span wires. It is made of porcelain, carefully glazed, and receives the commendation of all practical railroad men.

Trade Word.	Price.
Cavity. Per 100.....	\$10.00



**THE BAIN HIGH-RESISTANCE GLASS INSULATOR.**

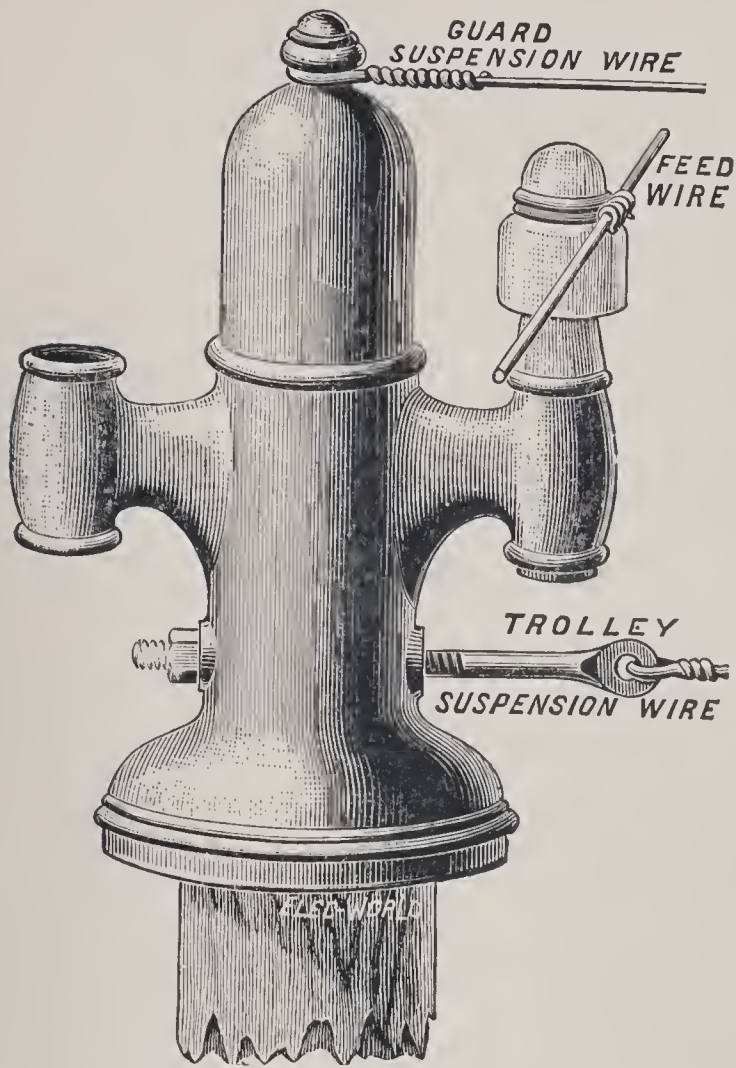
This is another of our Railroad Specialties and is meeting with a ready sale wherever presented. For full description see page 123.

Trade Word.	Price.
Cawing. Per 1,000.....	\$80.00

**For Explanation of Trade Word see page 4.**



ELECTRIC RAILROAD SUPPLIES.



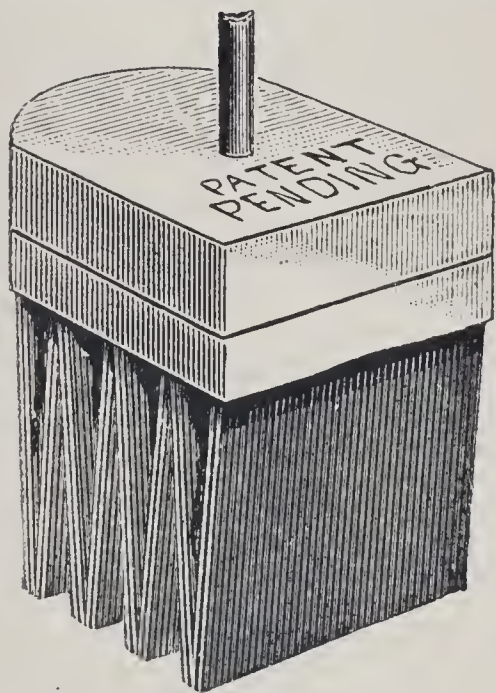
POLE TOP.

MORRIS COMBINATION POLE TOP.

Made of one solid casting, with 12 x  $\frac{5}{8}$  inch bolt with welded eye for Trolley suspension wire. Wooden plug (boiled in paraffine) and porcelain insulator for supporting the guard wire, which is 18 inches above the Trolley suspension wire.

Trade Word.	Price.
Fagot. Pole Top, complete.....	.....

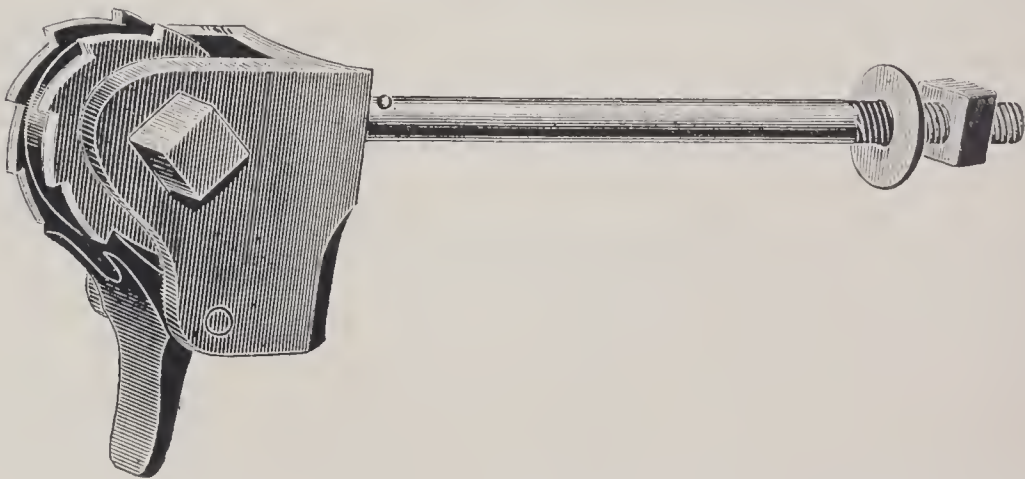
STEEL WIRE TRACK BROOMS.



These Steel Wire Track Brooms are made with converging holes or perforations which bring the wires in direct contact with each other, making a solid bunch or mass of wire at the point which comes in contact with the surface of the rail. Boring the holes so that every other two converge to a center, makes a scraper as well as a brush, merging in the No. 1 **TWO ROWS** into **ONE ROW**, and in the No. 2 and No. 3 **THREE ROWS** into **ONE ROW**.

Trade Word.	Price.
Faint. No. 1, medium.....per doz.,	\$24.00
Fainting. " 2, heavy.....	30.00
Faintly. " 3, extra heavy..	36.00

POLE RATCHETS.



A device used on iron or wooden poles to secure the perfect adjustment of the trolley and span wires over the tracks.

Above complete, with bolt to 6, 7 and 8 inch pole tops.

Trade Word.	Price.
Failing.....	\$1.50

SUSPENSION BOLTS.



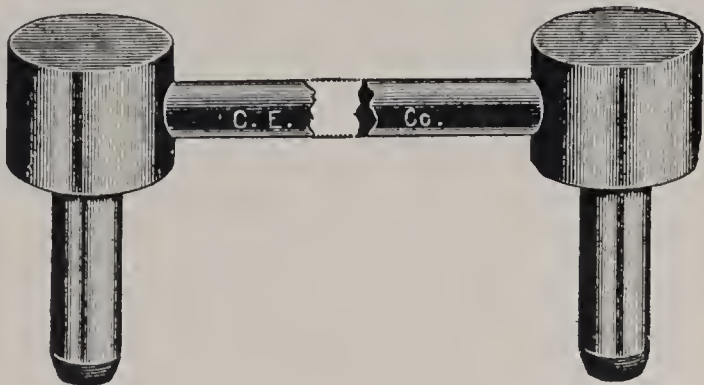
Trade Word.	Price.
Faintness. $\frac{1}{2}$ x 6. Complete.....each,	\$0.04
Fair. $\frac{1}{2}$ x 8. " .....	.04 $\frac{1}{2}$
Fairness. $\frac{1}{2}$ x 10. " .....	.05
Fairway. $\frac{1}{2}$ x 12. " .....	.05 $\frac{1}{2}$

For Explanation of Trade Word see page 4.



ELECTRIC RAILROAD SUPPLIES.

RAIL BONDS.



This standard Rail Bond is made with iron rivet, tinned, and connected with No. 4 soft drawn copper wire.

COPPER BONDS.

Trade Word.	Length.				Price.
Fairy.	24 inches.	$\frac{1}{4}$ inch rivet	.....	each,	\$0.20
Faith.	24 "	$\frac{5}{16}$ "	.....	"	.25
Faithful.	30 "	$\frac{1}{4}$ "	.....	"	.30
Faithfully.	30 "	$\frac{5}{16}$ "	.....	"	.35
Faithfulness.	72 "	$\frac{1}{4}$ "	Rivet one end only	"	.40
Faithless.	72 "	$\frac{5}{16}$ "	" "	"	.45

GALVANIZED IRON BONDS.

Falcon.	24 inches.	$\frac{1}{4}$ inch rivet	.....	each,	\$0.12
Falconer.	24 "	$\frac{5}{16}$ "	.....	"	.14
Fall.	30 "	$\frac{1}{4}$ "	.....	"	.14
Fallacy.	30 "	$\frac{5}{16}$ "	.....	"	.15
Fallible.	72 "	$\frac{1}{4}$ "	Rivet one end only	"	.14
Falling.	72 "	$\frac{5}{16}$ "	" "	"	.15

CROSS CONNECTING DOUBLE HEADED RAIL BONDS.



Used to connect the rails together electrically. Placed about every 50 feet, and is a safeguard against failure of return circuit through breaking of ordinary bond. The cross bond is six feet in length.

COPPER CROSS CONNECTING BONDS.

Trade Word.	With 24 inch bonds.	$\frac{1}{4}$ inch rivet	.....	each,	Price.
Fallow.	" 24 "	$\frac{5}{16}$ "	.....	"	\$0.70
Fallowness.	" 30 "	$\frac{1}{4}$ "	.....	"	.75
False.	" 30 "	$\frac{5}{16}$ "	.....	"	.80
Falsehood.	" 30 "	$\frac{5}{16}$ "	.....	"	.85

GALVANIZED IRON CROSS CONNECTING BONDS.

Falsify.	With 24 inch bonds.	$\frac{1}{4}$ inch rivet	.....	each,	\$0.38
Falter.	" 24 "	$\frac{5}{16}$ "	.....	"	.45
Faltering.	" 30 "	$\frac{1}{4}$ "	.....	"	.40
Fame.	" 30 "	$\frac{5}{16}$ "	.....	"	.50

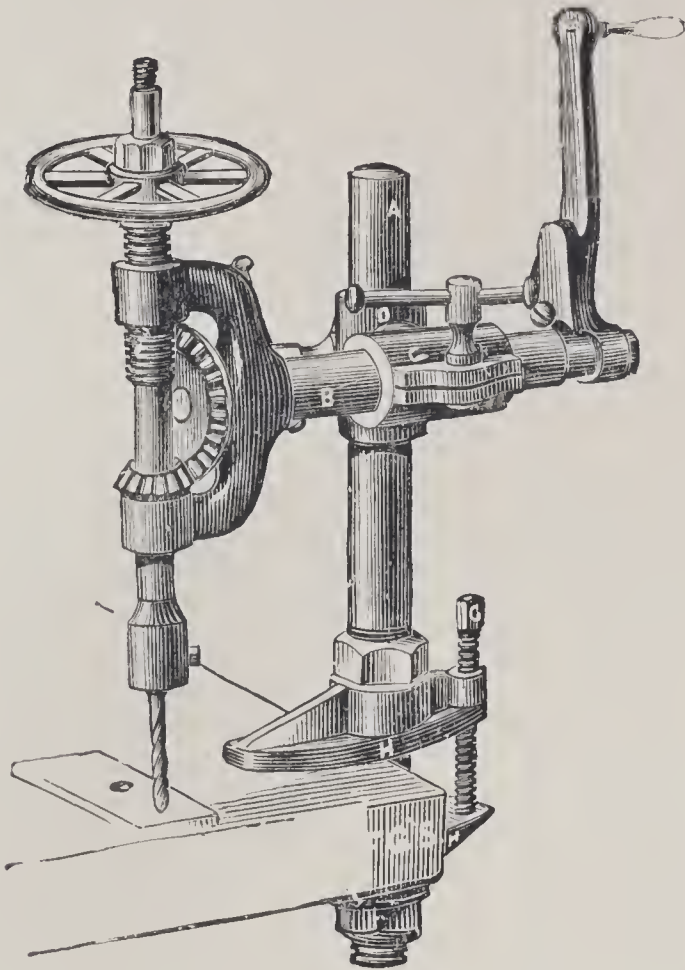
Any special form of Rail Bond, or size of Rivet, furnished on application.

For Explanation of Trade Word see page 4.



ELECTRIC RAILROAD SUPPLIES.

HAND RAIL DRILLS.



These Drilling Machines will work at any angle, and are used generally by electric railway companies. They are made of steel and are first-class in all respects.

Trade Word.		Weight.	Size.	Price.
Familiar.	No. 1.	26 lbs.	Up to $\frac{5}{8}$ in. hole	\$20.00
Family.	“ 2.	52 “	“ 1 “	25.00
Famine.	“ 3.	106 “	“ $1\frac{1}{2}$ “	40.00

The No. 2 Drill has two sets of gears, making either speeded or geared back machine.

THE MORRIS OIL CUP.



This Oil Cup was especially designed for use on electric railway motors. It is a simple and thoroughly practical device.

Trade Word.	Price.
Famish	each, \$1.00

For Explanation of Trade Word see page 4.



## BOOKS.

### AMERICAN AND FOREIGN BOOKS ON ELECTRICITY AND ITS APPLICATION.

#### ELECTRICITY, MAGNETISM, ETC., ETC.

Adams. Essay on Electricity.....	\$4.00
Angell. Elements of Magnetism and Electricity. Cloth, 238 pages, 151 illustrations.....	.75
Anderson. Lightning Conductors. Cloth.....	6.50
Atkinson. Elements of Static Electricity.....	1.50
Ayrton. Practical Electricity. For students of electrical engineering. 516 pages, 180 illustrations.....	2.50
Barlow. Magnetic Attractions.....	4.00
Barnard. First Steps in Electricity.....	.75
Benjamin. Age of Electricity.....	2.00
Brennan. A Popular Exposition of Electricity. 191 pages.....	.75
Blakesley. Alternating Currents of Electricity. Cloth.....	1.50
Bottone. The Dymamo: How Made and How Used. A book for Amateurs. Cloth.....	1.00
Cavendish. Electrical Researches. Cloth.....	5.00
Cook. Magnetism and Electricity. Cloth, 48 illustrations.....	.40
Cummings. Electricity Treated Experimentally. Cloth, 100 diagrams.....	1.50
Davis. Manual of Magnetism, Galvanism, etc.....	3.00
Deschanel. Electricity and Magnetism. Cloth.....	1.50
De Fonvielle. Thunder and Lightning. Cloth, 285 pages.....	1.00
De La Rue. Experimental Researches in the Electric Discharge with the Chloride of Silver Battery.....	3.60
Du Moncel. Electro-Magnets: Boards, 50c.; English Edition.....	.75
Dunman. Short Text Book of Electricity and Magnetism.....	.40
Dyer. Induction Coils: How Made and How Used. Boards.....	.50
Electricity in the Service of Man.....	6.00
Everett. Units and Physical Constants.....	1.10
Faraday. Experimental Researches in Electricity. 3 vols., cloth.....	20.00
Fiske. Electricity in Theory and Practice. Cloth, 270 pages, 180 illustrations.....	2.50
Ferguson. Electricity. Cloth.....	1.50
Fleming's. Short Lectures to Electrical Artisans.....	1.50
Francis. Electrical Experiments.....	2.50
Gordon. School Electricity. Cloth, 262 pages, 139 illustrations.....	2.00
Gordon. A Physical Treatise on Electricity and Magnetism. 2 vols., cloth.....	10.00
Gladstone & Tribe. The Chemistry of the Secondary Batteries of Plante and Faure.....	1.00
Gordon. Four Lectures on Static Electric Induction. Cloth.....	.80
Guthrie. Magnetism and Electricity.....	1.25
Hamilton. The Origin of Energy, Electrostatics and Magnetism.....	2.00
Heap. Electrical Appliances of the Present Day. Cloth.....	2.00
Hospitalier. Domestic Electricity. Cloth, 229 pages, 155 illustrations.....	3.00
Hospitalier. The Modern Applications of Electricity. Cloth.....	8.00
Harris. Rudimentary Electricity. Flexible, 69 illustrations.....	.60
Harris. Rudimentary Magnetism. Cloth, 165 illustrations.....	1.40
Harris. Galvanism, Animal and Voltaic Electricity.....	.60
Hering. Winding Magnets for Dynamos. 63 pages.....	1.25
Jeans. Lives of the Electricians.....	2.25
Jenkin. Electricity and Magnetism. Cloth, 177 illustrations.....	1.50
Kirwan. Modern Electricity, with Glossary of Electrical Terms. 128 pages.....	.30
Kohlrausch. Physical Measurements, with Appendices on Absolute Electrical Measurements...	6.00



## BOOKS—Continued.

### ELECTRICITY, MAGNETISM, ETC., ETC.—Continued.

Lardner. Hand-Book of Electricity, Magnetism and Acoustics. 400 illustrations, cloth . . . . .	\$2.00
Levander. Solutions of Questions in Magnetism and Electricity. Cloth. . . . .	1.00
Lightning Flashes and Electric Dashes. . . . .	1.00
Lloyd. Treatise on Magnetism. . . . .	5.00
Lock. Workshop Receipts. Devoted mainly to Electrical and Metallurgical subjects. Cloth. . . . .	2.00
Mahon. Principles of Electricity. . . . .	5.00
Martin & Wetzler. Electric Motor and its Applications. 208 pages, 199 illustrations. . . . .	3.00
Mascart & Joubert. A Treatise on Electricity and Magnetism. Vol. 1, cloth, 654 pages, 127 illustrations. . . . .	7.50
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Munro. Electricity and its Uses. Cloth. . . . .	1.40
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Munro & Jamieson. Electrician's Pocket-Book of Electrical Rules and Tables. . . . .	2.50
Niaudet. Elementary Treatise on Electric Batteries. Cloth, 55 illustrations. . . . .	2.50
Nipher. Theory of Magnetic Measurements. . . . .	1.00
Noad. The Student's Text Book of Electricity. Cloth, illustrated. . . . .	4.00
Overend. Elementary Experiments in Magnetism and Electricity. Cloth. . . . .	.40
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Rogers. Magnetism of Iron Vessels. . . . .	.50
Salomons. The Management of Accumulators. . . . .	1.20
Spang. Treatise on Lightning Protection. Cloth, illustrated. . . . .	.75
Stewart & Gee. Electricity and Magnetism. 497 pages, 223 illustrations. . . . .	2.25
Swinburne. Practical Electrical Units Popularly Explained. Cloth. . . . .	.60
Tarn. Magnetism and Electricity. A book for students. . . . .	.80
Techno-Chemical Receipt Book. . . . .	2.00
Thompson. Elementary Lessons in Electricity and Magnetism. Cloth, 168 illustrations. . . . .	1.25
Thompson. Recent Progress in Dynamo Electric Machinery. . . . .	.50
Thomson. Electro-Statics and Magnetism. . . . .	5.00
Treglohan. Frictional Electricity. . . . .	.50
Tyndall. Lessons in Electricity at the Royal Institute, 1875-6. Cloth. . . . .	1.00
Watson & Burbury. The Mathematical Theory of Electricity and Magnetism. Cloth, 268 pages. . . . .	2.75
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Welch. Table of Relative Weights of Copper Conductors. . . . .	.10
Woodward. Arithmetical Physics. Boards. . . . .	.80



## BOOKS—Continued.

### TELEGRAPHY AND TELEPHONY.

Abernethy. Commercial and Railway Telegraphy. Illustrated, cloth.....	\$2.00
Beechey. Electro-Telegraphy. Cloth, 36 illustrations.....	.40
Clarke & Sabine. Electrical Tables and Formulæ. Cloth.....	5.00
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Douglas. A Manual of Telegraph Construction. 83 diagrams, cloth.....	6.00
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Hoskiaer. Laying and Repairing Electric Telegraph Cables. Cloth.....	1.50
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Mullaly. Laying of the Cable.....	4.00
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Telegraphic Tests.....	5.60
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Alglave & Boulard. The Electric Light: Its History, Production and Application. 458 pages.	5.00
Atkinson. Elementary Principles of Electric Lighting.....	1.50
Badt. Dynamo Tenders' Hand-Book. General Rules for the Care and Operation of Electric Light Plants. 70 illustrations, 93 pages.....	1.00
Badt. Incandescent Wiring Hand-Book.....	1.00
Cunynghame. A Treatise on the Law of Electric Lighting. Cloth.....	5.00
Day. Electric Light Arithmetic. Cloth.....	.40
De Cew, Glaser. Magneto and Dynamo Electric Machines.....	3.00
Du Moncel. Electric Lighting. 66 illustrations, cloth.....	1.25
Dredge. Electric Illumination. 2 vols., cloth. Vol. 1 (scarce), \$15; vol. 2.....	7.50
Electric Lighting Act, 1882, also the Rules of Board of Trade, October, 1882.....	2.00
Foote. Economic Value of Electric Light and Power. 191 pages.....	1.00
Gordon. A practical Treatise on Electric Lighting. Cloth.....	4.50
Grierson. Electric Lighting by Water Power.....	.40



**BOOKS—Continued.****ELECTRIC LIGHTING AND TRANSMISSION OF POWER—Continued.**


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Swinburne.	Practical Electrical Measurement. 55 illustrations, 155 pages.....	1.75

**ELECTRO-METALLURGY, ELECTROTYPING, ETC., ETC.**

Badt.	Bell Hanger's Hand-Book. Practical Information and Suggestions to Persons having Charge of Batteries, Bells, Annunciators, and Electric Gas Lighting Apparatus. 105 pages, 97 illustrations.....	1.00
Bottone.	Electrical Bells and All About Them. Practical Instruction for Electric Bell Fitters. Over 100 illustrations, 190 pages.....	1.20
Bottone.	Electrical Instrument Making for Amateurs.....	2.00
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Gore.	The Art of Electro-Metallurgy. Cloth, illustrated.....	2.25
Napier.	A Manual of Electro-Metallurgy. Cloth.....	3.00
Urquhart.	Electrotyping. A practical Manual.....	2.00
Urquhart.	Electroplating. Cloth.....	2.00
Wahl.	Galvanoplastic Manipulations. Cloth.....	7.50
Watt.	Electro-Metallurgy Practically Treated. Cloth.....	1.00
Watt.	Electro-Deposition. Cloth, 588 pages, 144 illustrations.....	3.50
Wilson.	Stereotyping and Electrotyping. Cloth, 195 pages.....	2.00

 Copies of any of the above books will be promptly mailed, POSTAGE PREPAID, to any address in the world on receipt of price. Remit by Express or Post Office Money Order, Postal Note, Draft or Registered Letter.



## ELECTRICAL HOUSE GOODS.

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WE illustrate in this Catalogue a few standard articles coming under the head of Electrical House Goods that may be found of use around stations. For a full list of House Goods, Telegraph, Telephone, District Telegraph, Electro-Medical, Electro-plating Supplies and Electrical Sundries, see our Catalogue No. 101.



## ELECTRICAL HOUSE GOODS.

## THE BURNLEY DRY BATTERY.

PATENTED JANUARY 21st, 1890.

STRONG,

CLEAN,

DURABLE.

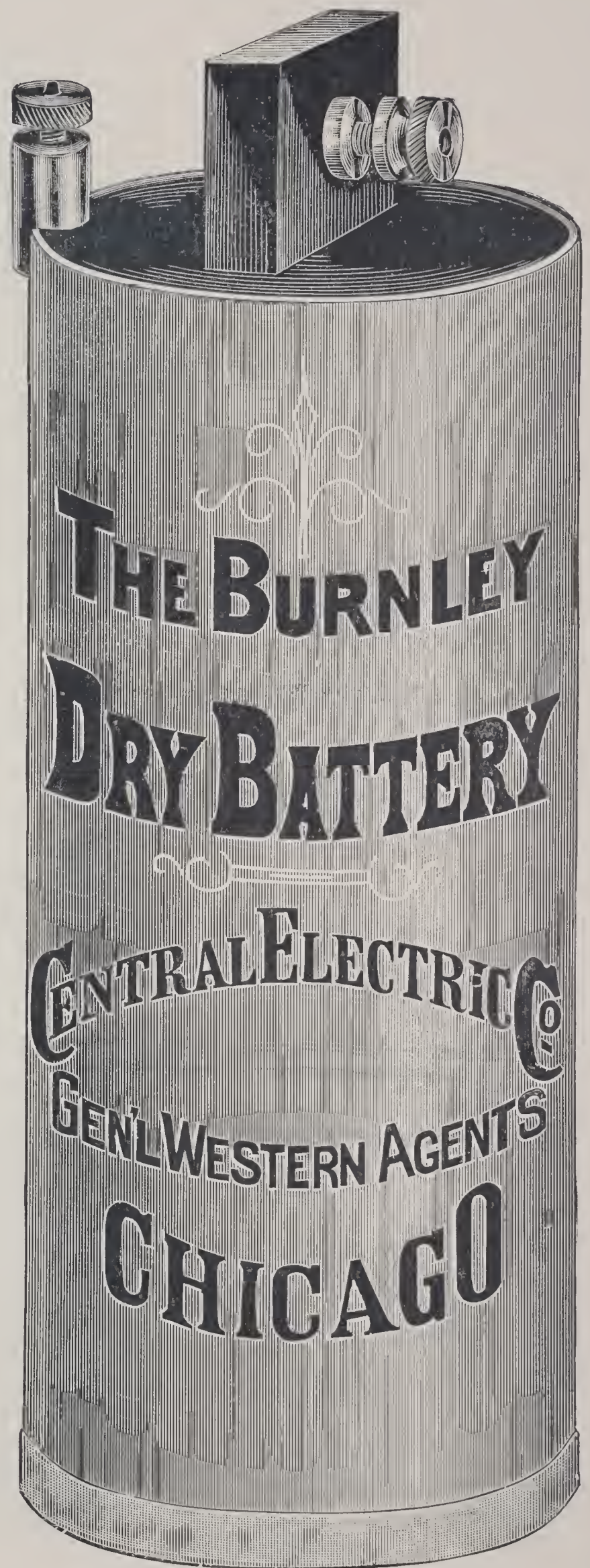
This improved form of Dry Battery, having been thoroughly tested, is presented to the Electrical Trade and to all users of Open Circuit Battery as the very best yet produced.

Its very compact form, being smaller than any other of equal capacity, and its great strength, durability and recuperative power are its chief merits.

Being in all respects a DRY Battery, without liquids, it is not subject to freezing in winter, or to evaporation at any time, and is absolutely clean.

Its connections are so arranged that no creeping salts whatever are at any time developed.

For portable purposes, railway signals, etc., where the battery is often placed out doors, it is especially recommended.



Trade Word.

Emblematize. . . . .

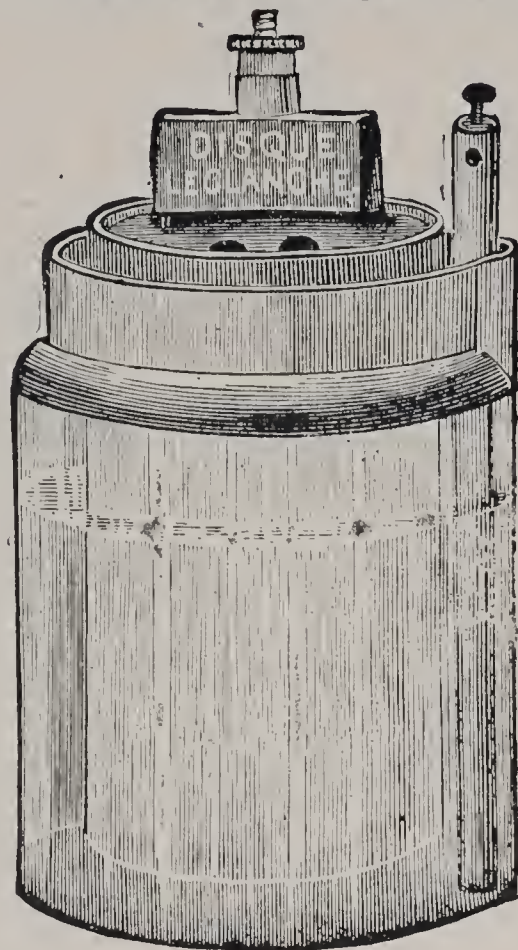
Price.

\$1.00

For Explanation of Trade Word see page 4.



ELECTRICAL HOUSE GOODS.  
THE LECLANCHÉ DISQUE BATTERY.



		Price.
Trade Word.		
Lace.	Cell complete .....	\$1.00
Lacerate.	Porous Cup alone .....	.75
Lacerated.	Glass Jar .....	.25
Lacerating.	Zinc .....	.10
Laceration.	Sal Ammoniac in bag .....	.15

EXTRA MICROPHONE BATTERY.



We are now making this Battery with a square glass jar, as shown above, which holds more solution than the old-style jar. The element is composed of a carbon porous cup, similar in construction to the original Leclanché cell, combining the good qualities of the Leclanché and Carbon Battery. We are the sole selling agents of this improved style.

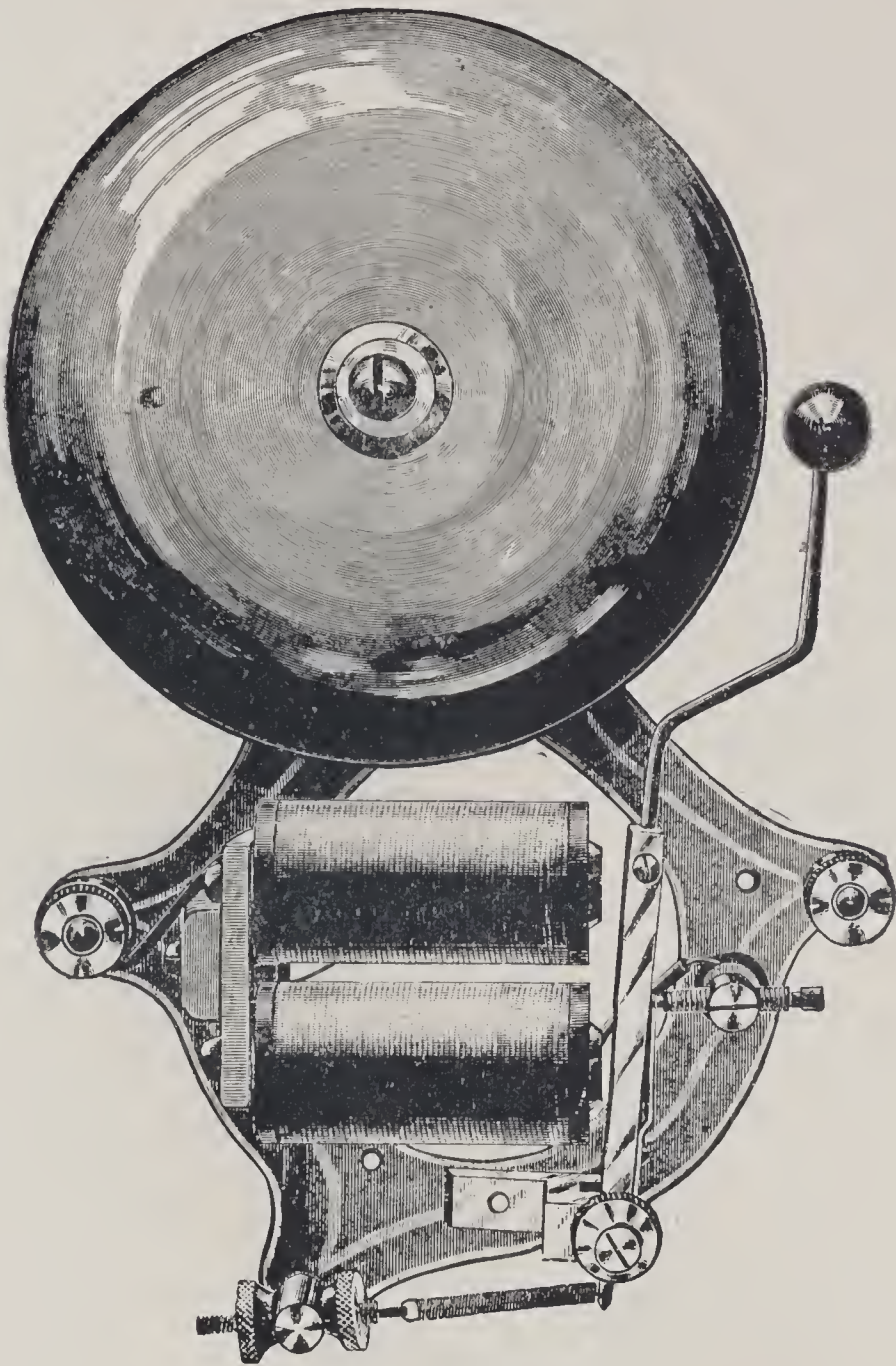
Trade Word.		Price.
Labor .....	each,	\$1.50

For Explanation of Trade Word see page 4.



ELECTRICAL HOUSE GOODS.

SKELETON BELL—STYLE D.



FINELY FINISHED—NICKEL PLATED TRIMMINGS.

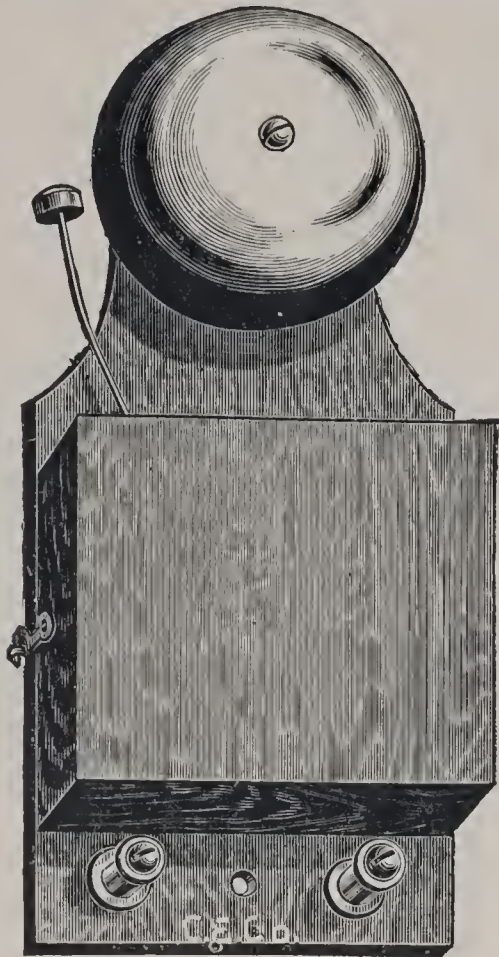
Trade Word.			Price.	
Lancet.	4 inches	.....	each,	\$4.50
Land.	5	“ ..... “		5.50
Landau.	6	“ ..... “		8.00
Landed.	7	“ ..... “		9.00
Landholder.	8	“ ..... “		11.00
Landing.	9	“ ..... “		13.00
Landlady.	10	“ ..... “		15.00
Landlock.	12	“ ..... “		18.00

For Explanation of Trade Word see page 4.



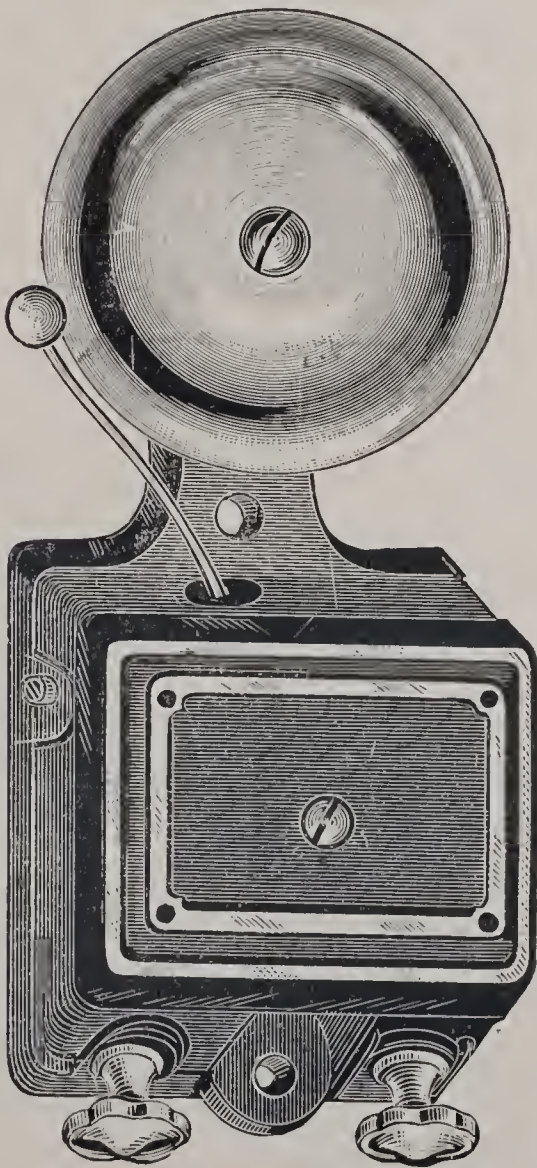
ELECTRICAL HOUSE GOODS.

WOOD BOX BELLS.  
OAK, ASH, WALNUT AND CHERRY.



Trade Word.				Price.
Landlord.	2½ inches	.....	each,	\$1.25
Landman.	3 “	.....	“	1.40
Landmark.	3½ “	.....	“	1.50

IRON BOX BELLS.



Trade Word.				Price.
Landroll.	2½ inches	.....	each,	\$1.00
Landscape.	3 “	.....	“	1.10
Landslide.	3½ “	.....	“	1.25

For Explanation of Trade Word see page 4.



ELECTRICAL HOUSE GOODS.

BRONZE PUSHES.

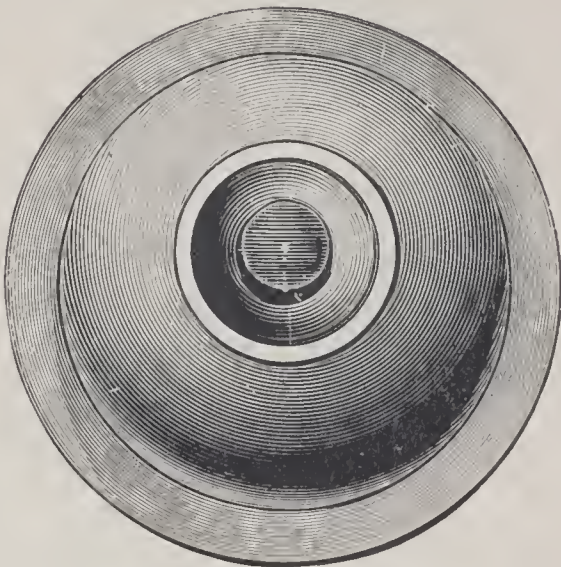
SCREW CAP.



FIBER BACK.

Trade Word.		Price.
Lark.	Inlaid.....	each, \$0.80
Larva.	Bright Bronze.....	“ .80

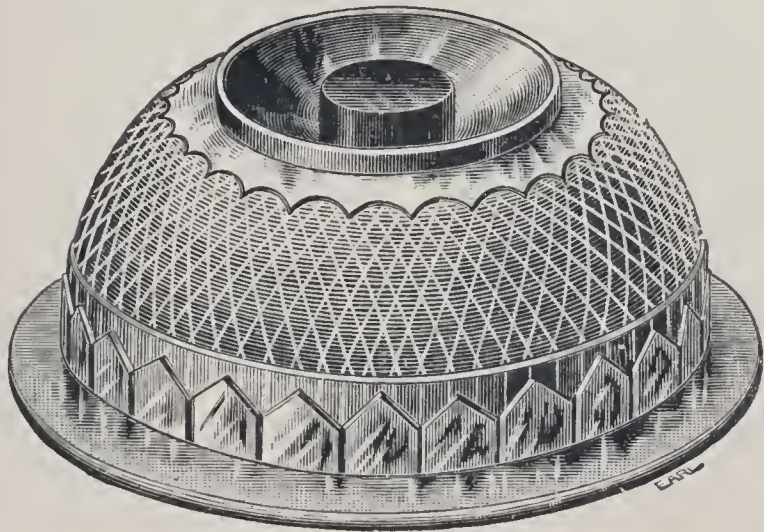
SCREW CAP.



FIBER BACK.

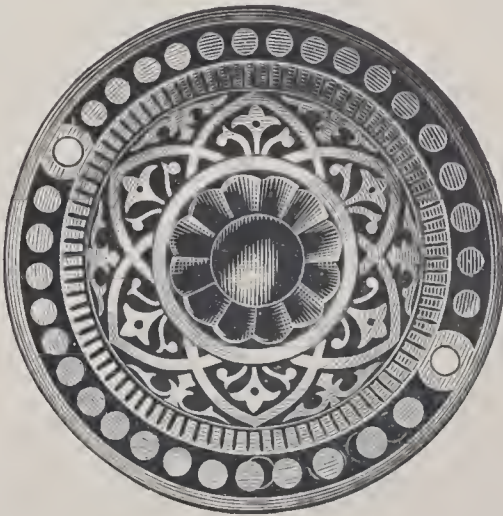
Trade Word.		Price.
Lascar.	Plain Bronze.....	each, \$0.80

SCREW CAP.



FIBER BACK.

Trade Word.		Price.
Lash.	Bright Bronze.....	each, \$0.70
Lashed.	Inlaid.....	“ .70



FIBER BACK.

Trade Word.		Price.
Lashing.	Bright Bronze.....	each, \$0.40
Lass.	Inlaid.....	“ .40

For Explanation of Trade Word see page 4.



ELECTRICAL HOUSE GOODS.

NEEDLE ANNUNCIATORS.

FINISHED IN ASH, OAK, ANTIQUE OAK, CHERRY OR WALNUT.

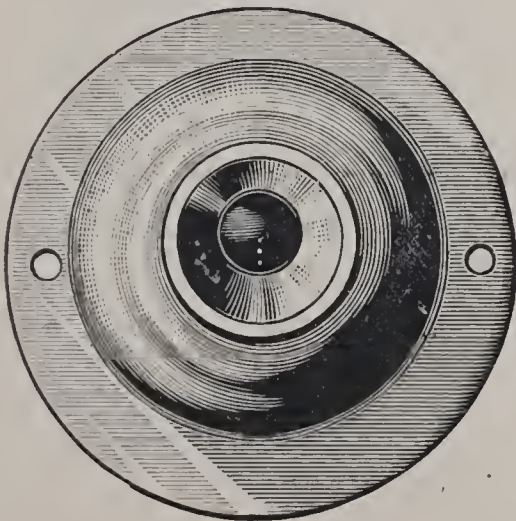


Trade Word.		Price.	
Laugh.	4 numbers	.....	each, \$10.00
Laughed,	6	“ .....	“ 15.00
Laughable.	8	“ .....	“ 20.00
Laugher.	10	“ .....	“ 25.00

Return Call, Burglar Alarm and regular An-  
nunciators of any number of indications furnished  
to order.

BRONZE PUSH.

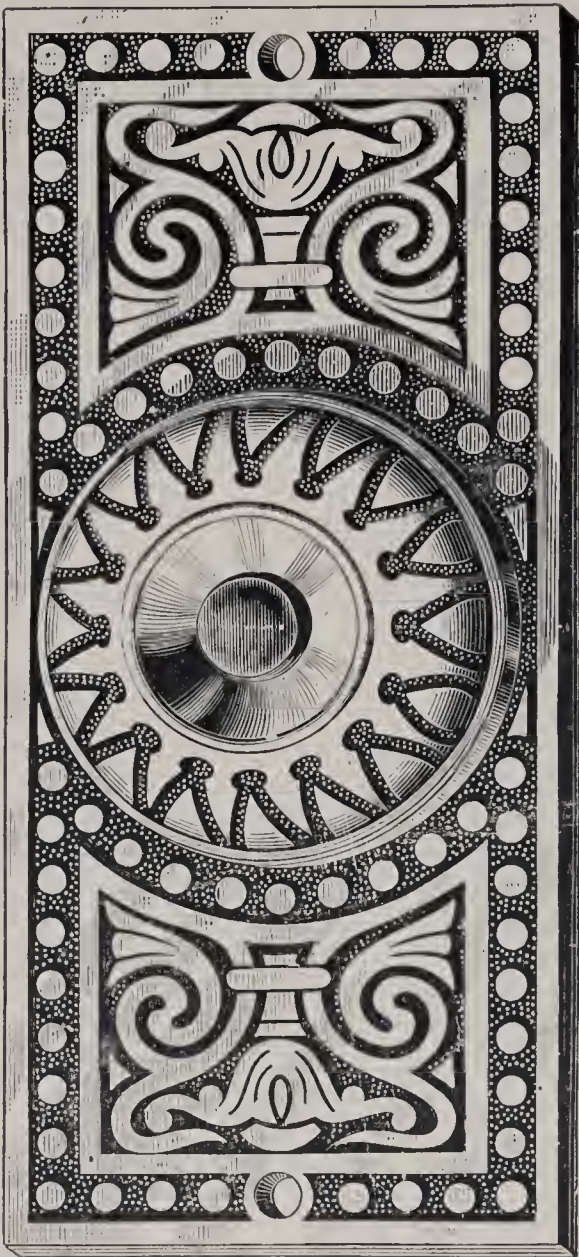
FIBER BACK.



Trade Word.		Price.	
Laundress.	Plain Bronze	.....	\$0.40

BRONZE PUSH.

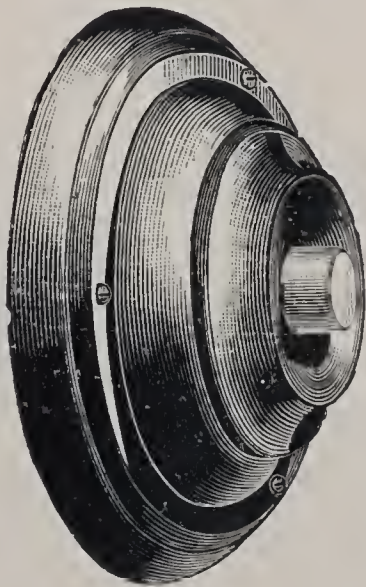
SCREW CAP, FIBER BACK.



Trade Word.		Price.	
Launch.	Inlaid Bronze	.....	each, \$1.50
Launched.	Bright “	.....	“ 1.50

WOOD PUSHES.

FINELY FINISHED.



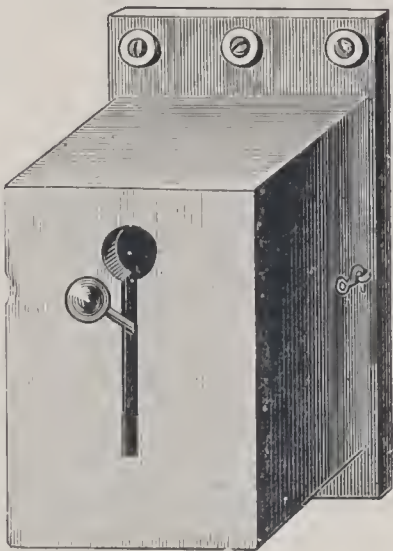
Trade Word.		Price.	
Laundry.	Oak	.....	\$0.25
Laureate.	Ash	.....	.25
Laurel.	Cherry	.....	.25
Lava.	Walnut	.....	.25
Lavation.	Cocobolo	.....	.40
Lavatory.	Rosewood	.....	.40

For Explanation of Trade Word see page 4.



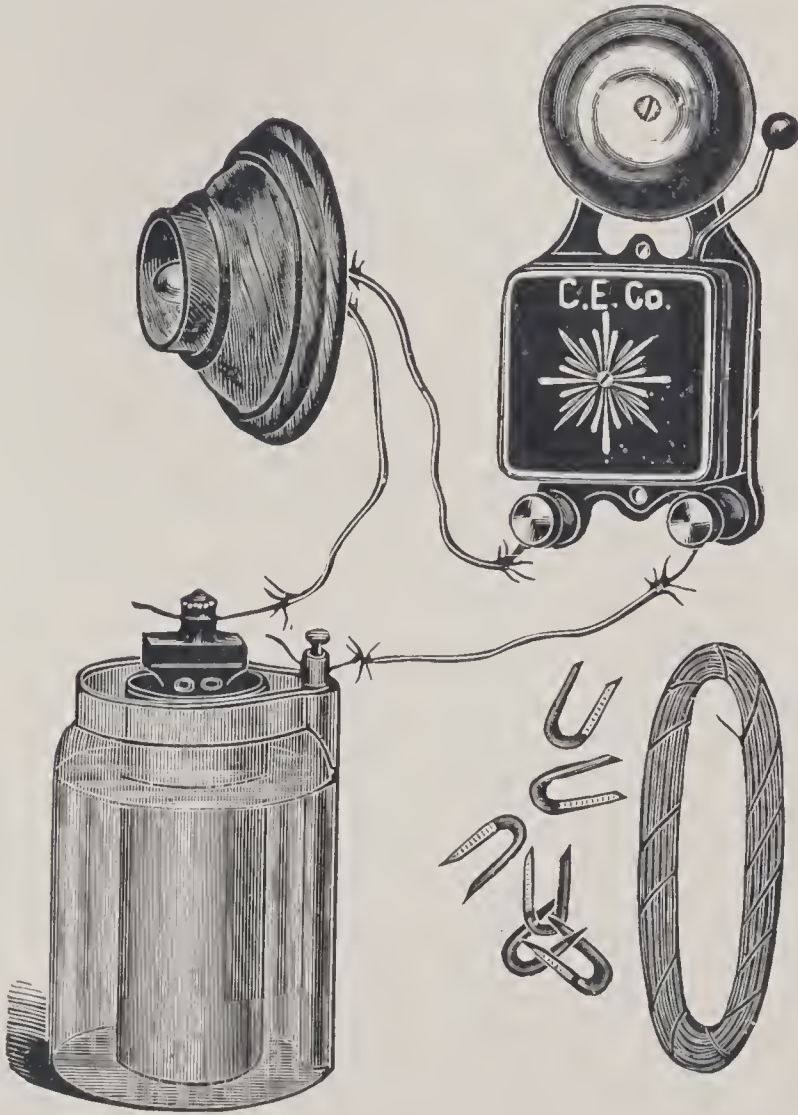
ELECTRICAL HOUSE GOODS.

AUTOMATIC DROP FOR CONSTANT RINGING ATTACHMENT.



Trade Word.		Price.
Lavender.....	each,	\$2.00

BELL SETS.



Trade Word.									Price.
Lavish.	No. A.	Fitted up with 3-in. wood box bell and bronze push.....	each,	\$4.50					
Lavished.	“ B.	“ “ 3- “ iron “ “ “ .....	“	4.25					
Law.	“ C.	“ “ 3- “ wood “ “ wood push .....	“	4.30					
Lawful.	“ D.	“ “ 2- “ iron “ “ “ .....	“	4.25					

Each of these Electric Bell Sets has in addition to the above 75 feet of wire, one cell of Disque Leclanche battery, tape and double pointed tacks, and is neatly packed in wooden boxes.

For prices on wire, wire staples, cleats, tapes, tools and other materials used in connection with house goods, refer to index.

For Explanation of Trade Word see page 4.



# USEFUL INFORMATION.



## RULES AND REGULATIONS

Of the New England Insurance Exchange and Boston Fire Underwriters' Union for Electric Lighting. [Adopted April 15th, 1889, and superseding all previous rules.]

### ARC SYSTEM.

#### OUTSIDE WIRES.

All outside overhead wires must be covered with some material of high insulating power, not easily abraded; they must be firmly secured to properly insulated and substantially built supports. All tie wires must have an insulation equal to that of the conducting wires.

2. All joints must be so made that a perfectly secure and unvarying connection, fully equal to the cross-section of the conducting wire, will be secured—and they should be soldered. Resin should not be used as a flux. Nothing but an acid solution should be used, and any excess should be washed off before the splice is covered. This also applies to inside wires. All joints must be securely wrapped with an approved tape.

The following formula for soldering fluid is recommended, viz.:

Saturated solution of zinc.....	5 parts
Alcohol.....	5 “
Glycerine.....	1 “

3. Care must be taken that conducting wires are not placed in such position that it would be easy for water, or any liquid, to form cross connection between them, and they should not approach each other nearer than one foot.

4. The wires must never be allowed in contact with any substance other than air, and their proper insulating supports.

5. Conducting wires carried over or attached to buildings, *must* be at least seven feet above the highest point of flat roofs, and one foot above the ridge of pitch roofs. Lines constructed subsequent to the adoption of these regulations should not be run over and attached to buildings other than those in which the light or power is being, or is to be used, but should be on separate poles, or structures, where they can be easily reached for inspection.

6. When they are in proximity to other conducting wires, or any substance likely to divert any portion of the current, *dead, insulated* guard-irons must be placed so as to prevent any possibility of contact in case of accident to the wires, or their supports. The same precautions must be taken

where sharp angles occur in the line wires, and also where any wires (telegraph, telephone or others) could possibly, owing to their position, come in contact with the electric light wires.

7. Overhead wires from the main circuit or pole in the street to the terminal insulators attached to buildings, and at the point where they enter a building, must not be less than twelve inches apart. They must be rigidly and neatly run, and supported by glass or porcelain insulators, or rubber hooks. The rubber hooks must be of an approved pattern, *i. e.*, with the rubber insulation free from flaws, and projecting over the hook in cup form.

8. Service blocks must be protected by at least two coats of water-proof paint over their entire surface; and when used to support rubber hooks, must have at least one inch of wood between the inner end of the hook and the back of the block.

9. For entering buildings, wires with an extra heavy water-proof insulation must be used from the terminal insulators outside to the inside of a building. They must loop down, so that water may drip off, without entering the building, and the holes through which they enter should, where possible, slant upward. If an approved glass insulator for bushing the hole be used, the extra heavy water-proof insulation will not be required.

10. Service wires must come in contact with nothing save air, and their insulating supports, except in unavoidable cases, when a wire with an extra heavy insulation suitable for the purpose must be used.

11. The use of porcelain knobs, as insulators, except in perfectly dry places, or for the support of specially insulated wire, will not be accepted unless of some approved shape.

12. None but an approved tubing will be accepted as a durable water-proof insulation.

13. Wires must enter and leave the building through an approved cut-out switch.

14. The cut-out switch must be “double contact,” and should effectually close the main circuit, and cut off the interior when turned “off.”



**NEW ENGLAND RULES—Continued.**

It must be so constructed that there shall be no arc between the points when thrown "on" or "off." It should be automatic in its action in either direction, not stopping between points when once started. It should indicate upon inspection whether current be "on" or "off."

15. It must be mounted on a non-conducting base, kept free from moisture, and easy of access to firemen and police.

**INSIDE WIRING.**

16. Wires must not be concealed; they must be run in plain sight so as to be open to inspection at any time. They should be kept apart at least twelve inches.

17. In perfectly dry places wires may be supported by cleats of wood (filled to prevent the absorption of moisture) or porcelain. Cleats should be so made as to separate the wire at least one-fourth of an inch from the building.

18. In places liable to dampness, wires must be separated at least one and one-half inches, they must be thoroughly and carefully put up, and supported upon porcelain or glass insulators, or hard rubber hooks. They should also be provided with an approved insulation covering.

19. When wires pass through walls, floors, partitions, etc., in-doors, glass insulators, or an extra covering of hard rubber, should be used. Wires must never be left exposed to disturbance or mechanical injury.

**ARC LAMPS.**

20. The frames and other exposed parts of arc lamps must be carefully insulated from the circuit.

21. Each lamp must be provided with a proper hand switch, and also with an automatic switch that will shunt the current around the carbons, should they fail to feed properly.

22. Stops of some kind must be provided to prevent the carbons from falling out in case their clamps fail to hold them; and these stops must always be in place when the lamp is burning.

23. For inside use the light must be surrounded by a globe resting in a tight stand, so that no particles of melted copper or heated carbon can escape. When inflammable material is near or under the lamp, the globe must be protected by a wire netting. Unless a very high globe, which closes in as far as possible at the top, be used, it must be provided with some protector or spark arrester, reaching to a safe distance above the light. Broken or cracked globes must be replaced by perfect ones immediately. (By inflammable material is meant such as dry goods, clothing, millinery and the like in stores; flyings or goods in fabric factories, shavings and saw-dust in wood-working shops, or any other substance that can be readily ignited by droppings or flyings from the lamp.)

24. Electrical connection between the conducting wires and lamps must be made through a suitable "hanger-board" and rods on which the lamp is hung.

**INCANDESCENT LAMPS ON ARC-LIGHT CIRCUITS.**

25. The rules for running wires for arc lamps apply also to incandescent lamps run in series.

26. These must be provided with a proper hand switch, and also with an approved automatic device which will shunt the circuit around the carbon filament should it break. No electro-magnet device will be accepted for this purpose.

27. Any method of distributing current to incandescent lamps on arc-light circuits, other than as above provided for, must receive the approval of this Exchange before being put into use.

**DYNAMOS AND MOTORS.**

28. They must be located in dry places, not exposed to the flyings of combustible material, and must be insulated upon dry wood, filled to prevent absorption of moisture. They must be kept thoroughly clean and dry. They must be provided with a reliable automatic regulating device, or a competent person must be in attendance near the machine whenever it is in operation. In wiring for motive power, the same precautions should be taken as with a current of the same volume and potential for lighting.

29. The wires leading to motors should be separated at least twelve inches from each other, and must be provided with an approved cut-out switch at the point where they enter the building. The same precautions must be observed in entering the building that are required for lighting circuits.

**TESTING.**

30. All circuits should be tested at least twice a day with a suitable magneto, or other approved device, in order to discover any escapes to ground that may exist. One test should be made in the morning, and another in ample time before starting, to remove any defect, should it be found to exist. The rules for testing should be observed in any separate or isolated plant the same as in Central Stations.

31. The New England Insurance Exchange reserves the right at any time to add to, change or modify these rules, and to enforce such modifications, changes, etc., as it shall deem necessary for safety; and it will use all reasonable efforts to promptly notify all electric light companies of any change.

32. The signing of these rules by an electric light company, or persons controlling electric lights, shall be considered a guaranty on their part that they will have the testing performed on their circuits or lines as above required.



## NEW ENGLAND RULES—Continued.

## INCANDESCENT SYSTEM.

## OUTSIDE WIRES.

1. All outside overhead wires must be covered with some material of high insulating power, not easily abraded, and they must be firmly secured to properly insulated and substantially built supports. All the wires must have an insulation equal to that of the conducting wires.

2. All joints must be so made that a perfectly secure and unvarying connection, fully equal to the cross-section of the conducting wire, will be secured—and they should be soldered. All joints must be securely wrapped with an approved tape.

3. Care must be taken that conducting wires are not placed in such position that it would be easy for water, or any liquid, to form cross connection between them, and main conductors or feeders should not approach each other nearer than one foot.

4. The wires must never be allowed in contact with any substance other than air, and their proper insulating supports.

5. Conducting wires carried over or attached to buildings, *must* be at least seven feet above the highest point of flat roofs, and one foot above the ridge of pitch roofs. Lines constructed subsequent to the adoption of these regulations should not be run over and attached to buildings other than those in which the light or power is being, or is to be, used, but should be on separate poles, or structures, where they can be easily reached for inspection.

6. When they are in proximity to other conducting wires, or any substance likely to divert any portion of the current, *dead, insulated* guard-irons must be placed so as to prevent any possibility of contact in case of accident to the wires or their supports. The same precautions must be taken where sharp angles occur in the line wires, and also where any wires (telegraph, telephone, or others) could possibly, owing to their position, come in contact with the electric light wires.

7. Wires from main circuit to main cut-out inside of buildings, must be separated by a distance of not less than six inches, for currents having an electro-motive force of 250 volts or less, and this distance must be increased for currents of higher potential.

8. They must also be rigidly and neatly run, and must be supported by glass or porcelain insulators, or by rubber hooks. Rubber hooks must be of an approved pattern; *i. e.*, with the rubber insulation free from flaws, and projecting over the hook in cup form.

9. Service blocks must be protected by at least two coats of water-proof paint over their entire surface; and, when used to support rubber hooks,

must have at least one inch of wood between the inner end of the hook and the back of the block.

10. For entering buildings, wires of extra heavy and durable water-proof insulation, protected by an outside covering not easily abraded, must be used from the terminal insulator outside, to the main cut-out inside of the building. They must loop down, so that water may drip off without entering the building, and the holes through which they enter should, where possible, slant upward. If an approved glass insulator for bushing the holes be used the extra heavy insulation will not be required.

11. Service wires must come in contact with nothing save air, and their insulating supports, except in unavoidable cases, when a wire with an extra heavy insulation, suitable for the purpose, must be used.

12. The use of porcelain knobs as insulators, except in perfectly dry places, or for the support of a specially insulated wire, will not be accepted, unless of some approved shape.

## UNDERGROUND SERVICE.

13. Where underground service conductors, enclosed in a metal tube, enter a building, special care must be taken at the point where the conductors leave the tube, and thence to the main cut-out, to protect them in such a manner that they can not come in contact with each other, nor with the tube, nor be acted upon by falling moisture, nor disturbed by anything being moved against them, etc.

14. This service must not end in any place where it would be unsafe or undesirable to place a cut-out, but should be continued by means of specially insulated conductors (and a space of ten inches should be maintained between them) to a suitable location.

## INSIDE WIRING.

15. Copper wire used for incandescent lighting must be procured from manufacturers whose products have been found, by reliable tests, to be at least 95 per cent. conductivity. Samples of wire to be used, or in actual use, must be submitted to this Exchange, for tests of conductivity, at any time when required. Samples of wire must also be submitted for tests of insulation, at any time when required.

For inside work, no wires smaller than No. 16 "B. & S." or No. 18 "B. W. G." will be approved.

16. Permission will not be granted for the use of the lights unless the wire come fully up to the standard of conductivity, no matter how well the wiring may be done.

17. All parties, firms or corporations proposing to do construction work or wiring, either out-



## NEW ENGLAND RULES—Continued.

side or inside, must fully satisfy this Exchange of their ability to do the work in a safe and acceptable manner.

18. Before using any new form of insulation, the approval of this Exchange for its use under the proposed circumstances must be secured.

19. The use of lead-covered wire, or wire the covering of which contains paraffine, is prohibited.

20. Mouldings with open grooves laid against the walls or ceilings will not be approved. A wood moulding having a backing of at least one-fourth inch thickness to intervene between the wire and the wall or ceiling of the building, the backing to be protected by at least two coats of water-proof paint, and the moulding of such shape as to protect the wire from moisture, will be approved.

21. When wires are run in new buildings, and are to be concealed from view by walls and ceilings, care must be taken to separate them ten inches or more, whenever it be possible to do so, by running them singly on separate timbers, studing, etc. Cleats are not desirable for concealed work. All concealed wires should be supported on insulators, such as porcelain knobs, or other equally good, non-combustible, insulating substance. Wires should, where it be possible, be kept from contact with any part of the building by means of such insulators, rather than to depend upon the insulation covering. Where complete separation from the building by air space and insulators be not possible, an approved insulation covering, that shall be water-proof and non-combustible, will be required. Wires run in non-combustible and water-proof tubes, made of a suitable insulating material, will be approved.

Care must be taken to keep the wires away from metal pipes and other conductors. Outlet wires should be left in such a way as not to be injured by plasterers. They should not, as a rule, be brought through the same opening with gas-pipes, but must be carefully insulated from them.

22. Approval will not be given to any work where the wires have been "fished" any great distance.

23. Moulding must not be used in wet places.

24. In dye-houses, paper and pulp mills, and other buildings specially liable to moisture, all wires (except when used for pendants) must be separated at least six inches. The wire must be thoroughly and carefully put up, and must be supported by glass or porcelain insulators, or by rubber hooks.

25. In crossing any metal pipes, or any other conductor, wires must be separated from the same by an air space of at least one-half inch, where possible, and so arranged that they can not come in contact with each other by accident. Wires should go over water-pipes where possible.

26. Where wires pass through partitions, floors, etc., glass insulators, or an outer covering of hard rubber should be used to protect them.

27. Wires must never be left exposed to mechanical injury, or to disturbance of any kind.

28. Metallic staples must never be used; when staples are used they must be of an approved insulating material.

29. None but an approved tubing will be accepted as a durable water-proof insulation.

30. Wires of the same polarity, but belonging to different circuits, or leading to and from a double-pole switch, must not run in one groove through the same tube, nor in the same slot in a cleat.

31. Cleats should be made of well-seasoned hardwood (filled to prevent the absorption of moisture), porcelain or other approved material, and so made as to separate the wire at least one-fourth inch from the building. When secured by cleats not over four feet apart and tightly stretched in the same horizontal plane, wires having a difference of potential of 120 volts or less, should be separated at least one and one-half inches; when they are confined in moulding a half-inch space is sufficient. This rule applies only to small mains, taps, etc., mains carrying currents of large volume should be separated a greater distance.

32. The dividing strip between grooves in moulding must never be reduced below one-half inch in thickness by cutting out to admit joints in wires.

33. Where exposed to acid fumes, vapors of ammonia, etc., wires should be provided with an insulation that will not be injured thereby, and should be put up in the manner described in Rule 24.

34. All splices in wires must be soldered; a soldering-bolt should be used for this purpose, if possible. Care must be taken not to render the wire brittle by over-heating. Resin should not be used as a flux. Nothing but an acid solution should be used, and any excess should be washed off before the splice is covered.

35. The insulation of any joint must be equal to that of the other parts of the same wire.

## SAFETY CUT-OUTS AND SWITCHES.

36. Every system of conductors must be protected by safety cut-outs that will interrupt the passage through the conductors of a current stronger than they can safely carry. The carrying capacity (in amperes) of a fusible metal must be less than that of the smallest conductor it is designed to protect. Conductors include wire, cord, binding-screws, contact points of switches, sockets, cut-outs, etc.



## NEW ENGLAND RULES—Continued.

Any fuse must melt immediately with any excess of the amperes which it is marked to carry.

37. A cut-out must be placed where the underground or overhead service joins the inside wires, and at every point where a change is made in the size of the wire (unless the cut-out in the larger wire be intended to protect the smaller).

38. Cut-outs, switches, and other devices which occasion a break in the circuit, must be so arranged that leakage of electricity from them is impossible, and should be mounted on non-conbustible material; must not be put in places liable to become damp; must be protected from rubbish, etc., and should be easy of access.

39. Where it be necessary to use cut-outs and switches in damp places, great care must be taken to protect them from moisture, and to use only such as are provided with bases that will not absorb moisture.

40. When necessary, cut-out devices must be covered with some fire-proof and water-repelling material.

41. All cut-outs must be double-pole.

42. The plug or other device for enclosing or supporting the fusible strip or wire should be incombustible and moisture-proof, and so constructed that an arc can not be maintained across its terminals by the fusing of its metals.

43. No lead or composition strips carrying more than ten amperes before melting shall be used, unless provided with contact surfaces of some harder metal having perfect electrical connection with the fusible part of the strip.

44. All switches must have a firm and secured contact that will make and break readily, and that will not stick between "full on" and "off," nor get out of repair easily in other ways. The points of contact must not be allowed to scrape or rub the entire surface of an insulating material between the contact strips—an air space must intervene. The carrying capacity of the different parts must be sufficient to prevent heating.

45. Where points varying widely in potential are brought near each other by means of cut-outs, or switches, hard rubber, lava or other approved material must be used in the construction of the cut-outs and switches.

46. Switches *should* be double-pole, and they *must* be when the circuits which they operate are connected to fixtures attached to gas-pipes.

47. On any combination fixture, no group of lamps requiring a current of seven amperes or over shall be ultimately dependent on one cut-out.

## FIXTURE WORK.

48. In all cases where wires are concealed within, or attached to fixtures, the latter must be insulated from the gas-pipe by some device ap-

proved by this Exchange. An exception to this rule will sometimes be made in the case of a wall gas-bracket wired for one or two lights.

49. When holes are drilled in fixtures, all burs or fins must be removed from the edge of the holes before the conductors are drawn through.

50. When wired outside, the conductors used must be so secured as not to be cut or abraded by the pressure of the fastenings or motion of the fixture.

51. All wire used for fixture work must have an insulation that is durable, and not easily abraded, and must not in any case be smaller than No. 18 "B. & S." or No. 20 "B. W. G."

52. Each fixture must be tested for possible "contact" between wire and fixture, and for "short circuit," before current is turned on.

53. The tendency to condensation within the pipes or fixtures should be guarded against by sealing the upper end.

54. No combination fixture with less than one-fourth inch clear space between the inside pipe and the outside casing will be approved.

## PENDANTS AND SOCKETS.

55. No portion of the lamp-socket exposed to contact with outside objects will be allowed to come into electrical connection with either of the conducting wires.

56. Cord pendants must be protected by hard rubber bushing, or something equally good, where they enter the socket.

57. The use of paraffined insulation for pendants will not be approved.

58. Key sockets must not be used with wire pendants, unless the wire be composed of strands, *i. e.*, flexible.

59. When exposed to the weather, or used in wet rooms, care must be taken to keep moisture from the inside of sockets.

60. The weight of every socket and lamp suspended by a cord must be borne by a ceiling block, rosette, or cleat, and by a knot under the bushing in the socket, in order to take all strain from the joints and binding-screws.

61. Flexible cord must not be used except for pendants, wiring of fixtures, portable lamps, and "mill work."

62. The two conductors of flexible cord must *not* have an insulation composed of an inflammable water-proof compound between them, but should be separated by a fibre insulation, or the like. If a water-proof insulation be necessary, it must be placed outside the two conductors, and must in all cases be covered with a non-inflammable outside coating, to prevent cord from carrying fire.



## NEW ENGLAND RULES—Continued.

## DYNAMOS AND MOTORS.

63. They must be located in dry places, not exposed to flyings of combustible material, and must be insulated upon dry wood, filled to prevent absorption of moisture. They must be kept thoroughly clean and dry. They must be self-regulating, or a competent person must be in attendance near the machine whenever it be in operation. In wiring for motive power, the same precautions should be taken as with a current of the same volume and potential for lighting. The motor (and resistance box) should be protected by a cut-out, and controlled by a switch.

## SECONDARY GENERATORS OR CONVERTERS.

64. Converters must not be placed inside of any building. They may be placed on the outer walls when in plain sight and easy of access, but must be thoroughly insulated from them. If placed on wooden walls, or the woodwork of stone or brick buildings, the insulation must be fire-proof. When an underground service be used, the converter may be put in any convenient place that is dry and does not open into the interior of the building; this location must have the approval of the inspector before the current is turned on.

65. The converter should be enclosed in a metallic or non-combustible case.

66. If for any reason it become necessary that the primary wires leading to and from the converter should enter a building, they must be kept apart a distance of not less than twelve inches, and the same distance from all other conducting bodies. The insulation of the wire must be of the very best.

67. Safety fuses must be placed at the junction of all feeders and mains, and at the junction of mains and branches where necessary, also in both the primary and secondary wires of the converter, in such manner as not to be affected by the heating of the coils. Secondary wires, after leaving the converter, will be subject to rules already given for services, inside wiring, etc.

68. Any provision for grounding the secondary circuit by means of "film cut-out" or other approved automatic device, will be approved. A permanent ground will not be approved.

## MISCELLANEOUS.

69. Companies or individuals furnishing electricity from central stations must enter into an agreement with this Exchange, binding themselves to maintain at all times in their stations some approved device to indicate any escape to earth, which may tend to develop leakage to water or gas pipes, or other earth connections within buildings. This approved means of testing shall also apply to

separate or isolated plants, where special conditions of moisture exist, or in buildings subject to mechanical changes of piping, etc.

70. The signing of these Rules and Requirements shall constitute and be considered an agreement on the part of the signer that such approved device or tell-tale shall at all times be employed on their circuits.

71. The wiring in any building must test free from "grounds" before the current be turned on. This test may be made with a magneto that will ring through a resistance of 10,000 ohms, where currents of less than 200 volts potential are used.

72. All incandescent work should be inspected before being concealed, and notice should be given this Exchange as soon as work be commenced.

73. The New England Insurance Exchange reserves the right at any time to add to, change, or modify these Rules, and to enforce such modifications, changes, etc., as it shall deem necessary for safety; and it will use all reasonable efforts to promptly notify all Electric Light Companies of any change.

74. Any additional loading of wires, either in a building as a whole, or in any department thereof, without the previous approval of the Exchange, or the inspector, shall be deemed a sufficient cause for the suspension of permits until such approval be secured. (*See Form F, Inspector's Certificate.*)

## NOTES.

A certificate for all new work or changes in old work (Form C for Arc, Form F for incandescent) should be signed by the party installing or controlling any apparatus. The certificate should be filed with the Secretary of the Local Board of Fire Underwriters having jurisdiction, if there be such, otherwise with the Secretary of the New England Insurance Exchange, Boston.

This certificate is relied upon as a guarantee until the work can be inspected. Permits for the use of the light or power may be granted as soon as the certificate be duly filed.

Concealed work should be inspected before being covered up, and, as a rule, incandescent work generally should be inspected before current be turned on.

The above Rules and Requirements are jointly adopted by the New England Insurance Exchange, "Associated Factory Mutuals," and Boston Fire Underwriters' Union, and are applicable to all Electric Lighting and Power work in New England, exclusive of buildings in the State of New Hampshire not insured by the "Associated Factory Mutuals."

[Also adopted by the New York State Board.]



## NEW YORK BOARD OF FIRE UNDERWRITERS.

Amended Standard for Electric Equipments, Adopted February 27, 1889.

### CONDUCTORS.

#### CAPACITY OF WIRES.

1. The conducting wires must be of copper and must have a weight per running foot at least equal to that of the wire (or parallel group of wires) constituting the main circuit of the magnetic regulator of the electric lamps (arc lamps), or of the armature of the machine employed, whichever of these be greatest.

#### JOINTS OR SPLICES.

2. All joints on wires must be so made as to secure perfect and durable contacts, which shall always maintain a degree of conductivity at the joint, at least equal to that of the wire generally.

3. The joint must be so made as in the ordinary "telegraph splice" that it be mechanically secure against motion or displacement, and must then be further electrically connected by solder so applied as to leave no corrosive or otherwise injurious substance on the connection. After joining and soldering, the joint must be covered with insulating material in such a way as to make the insulation of the joint as good as that of the rest of the line.

4. A joint made by the process of electric welding would be the equivalent of one made as indicated above, but no joint depending upon solder for its mechanical integrity, either wholly or in part, will be allowed.

#### WIRES EXTERIOR TO BUILDINGS.

5. Outside wires must be covered with at least two coatings, one of insulating material impervious to water, next to the wire, and the other of some substance fitted to resist abrasion or like mechanical injury, and must be firmly secured to substantial approved insulators, adequately supported. All "tie wires" or those used to secure the conductors to the "insulators" must be themselves covered with waterproof insulating and mechanically resistant material similar to that used on the conductors themselves.

6. Overhead conducting wires must be supported on poles as far as possible, so that they can be easily reached for inspection, and when this cannot be done, and special permit be granted allowing them to be carried over attached to buildings, they must be supported at least seven feet above the general level of the roof and at least one foot above the ridge of "pitch roofs."

7. Where wires approach buildings to enter them they should be so located as not to be readily

reached by the occupants of such buildings, and in the case of arc light systems must maintain a minimum distance of ten inches and for incandescent systems of six inches except where the wires are carried in conduits.

8. When these exterior electric light wires are near other conductors of any kind capable of carrying off a part of the current if contact should be made, dead insulated guard-irons must be placed so as to prevent any such contact in case of accident affecting the wires or their supports.

9. Like precautions must be taken where acute angles occur in the line wires.

10. Overhead wires from the main circuit or pole lines in the street to the insulators attached to the buildings which they enter, must not be less than ten inches apart for arc wires or six inches for incandescent wires carrying currents of 250 volts E. M. F. as a maximum. They must be securely and rigidly supported on "insulators" of glass, porcelain or other approved material.

#### WIRES ENTERING BUILDINGS.

11. Whenever electric light wires enter buildings through their exterior walls the wires must be firmly supported and incased in tubes of non-conducting material not liable to absorb moisture (*e.g.* porcelain or glass) and so placed as to prevent the entrance of rain water along the wires (*e.g.* the tubes must slope *upward* as they pass *inward* through the wall).

12. Both the ingoing and return wires should enter the building at the same location, and pass through an approved manual "cut-out box" or switch, which must be placed where it will be easy of access to firemen and the police.

#### HIGH POTENTIAL WIRES WITHIN BUILDINGS.

13. In the interior of buildings wires for arc lights, besides being covered with an insulating covering, such as has already been described, must be in all cases securely attached and supported by insulators which shall keep them out of contact with any wall, partition, ceiling or floor, so as to secure an air space of at least one-quarter inch between the wire and any adjacent wall, partition or floor, and whenever the wires cross or come near to any other wires, pipes or other conductors, the wires must all be rigidly secured and separated from each other or any other conductors by means of some rigid non-conducting material.

14. Arc wires of opposite polarities (*i. e.* the incoming and outgoing wires from each lamp or of



## NEW YORK UNDERWRITERS' RULES—Continued.

each circuit) must be kept at a distance not less than eight inches from each other except within the structure of lamps or on switch-boards, cut-out boxes or the like, where a nearer approach is necessary.

15. In exceptional cases, however, where the wires are so rigidly secured and insulated that contact or connection between them is quite impossible, they may be allowed to approach nearer. (*e. g.* If each wire or conductor be covered with a thick and undisplaceable insulation, which in turn is covered by a leaden sheath or pipe and then two or more such pipes are inclosed in an iron pipe in such manner that injury to the lead-covered cables be impossible, this would be an allowable substitute for the eight inches of absolute separation called for in the general rule.)

16. Whenever wires are carried through walls, partitions or floors within a building, they must be surrounded by a special rigid insulating tube or casing impervious to water, and must be so attached and supported as to be secure from abrasion or other mechanical injury.

NOTE.—Rubber tubing will not meet the above requirements as an insulation.

### ARC LAMPS.

17. The exterior frames and other exposed parts of arc lamps must be securely insulated from the electric circuit, and all such lamps must have glass globes surrounding the light and inclosed below, so as to prevent the fall of ignited particles. Where inflammable materials are placed below such lamps the globe must be surrounded by a wire netting capable of keeping the parts of the globe in place if it be fractured in use.

NOTE.—Broken globes must be replaced as soon as practicable by new ones.

18. In show windows and other places where inflammable materials are displayed and in factories or wood-working establishments where "flyings" may be present in the air, each lamp must be provided with "spark arresters."

19. Each lamp must be provided with a hand-switch and also with an automatic switch which shall shunt the current round the carbons before the arc between them reaches a dangerous length.

## LOW POTENTIAL SYSTEMS.

### DIRECT SYSTEMS.

20. In direct incandescent systems, the rules as to the capacity, location and arrangement of conductors are substantially the same as has been already stated, with the following exceptions:

21. In case the difference of potential at the positive and negative posts of the dynamo or dynamos developing the current is not more than 250 volts the positive and negative wires in aerial lines and elsewhere which would otherwise be required to maintain a minimum distance of ten inches, may be brought to within six inches of each other. Also underground conductors may be inclosed both in the same tube, and if rigidly and securely supported, and surrounded by and embedded in a solid insulating substance, may lie within one-quarter inch of each other.

22. When underground-service conductors enter a building care must be taken that they be at once separated to the required distance (see below) and are adequately and permanently insulated from each other and from the pipe in which they were inclosed, if they were inclosed in a metallic pipe or conduit.

23. They must also be adequately protected from mechanical injury, and must be so located that a cut-out can be safely and conveniently located close to the end of the service pipe or conduit by which they are brought in.

### LOW POTENTIAL WIRES WITHIN BUILDINGS.

24. In the distribution of the conductors through buildings "concealed work," such as the placing of wires under floors or within partitions, walls or ceilings should be avoided as much as possible.

25. In perfectly and securely dry localities an approved insulated wire without water-proof covering may be used, provided the wires are not concealed and are supported by cleats or insulators.

26. Wherever the wires are to be in any way covered up they must be coated with an approved water-proof insulation.

27. In all cases of concealed work the company proposing to introduce the same will be required to furnish the Board with a detailed diagram of the work, showing the kind and size of wire used at the different branches, with particulars as to the insulation and in what materials embedded, location of cut-outs, switches, etc. The diagram to be signed and sworn to by an officer of the company and filed with the Board for reference.

28. If wires be embedded in the plaster of walls, ceiling or partitions, they must be separated not less than ten inches from each other, in addition to being insulated as above described.

29. In buildings in course of construction, terminal wires must be so arranged as to be secure from injury by the plasterers.

30. Wires insulated as above may be covered by or embedded in mouldings in dry locations, but in breweries, paper-mills, dye-houses, and other like places where they are exposed to moisture,



**NEW YORK UNDERWRITERS' RULES—Continued.**

they must be carried out of contact with the walls, ceilings and the like on approved "insulators."

**SECONDARY SYSTEMS.**

31. In these systems where alternating currents of high electro-motive force are used on the main lines, and secondary currents of low electro-motive force are developed in local "converters" or "transformers," it is important that the entire primary circuit and the transformers should be excluded from any insured building, and be confined to the aerial line (the transformers being attached to the poles or the exterior of the buildings) or to underground conduits, if such be used, or placed in fire-proof vaults or exterior buildings.

32. In those cases, however, where it may not be possible to exclude the transformers and entire primary from the building, the following precautions must be strictly observed.

33. The transformer must be constructed with or inclosed in a fire-proof or incombustible case, and located at a point as nearly as possible to that at which the primary wires enter the building. Between these points the conductors must be heavily insulated with a coating of approved water-proof material, and, in addition, must be so covered in and protected that mechanical injury to them, or contact with them, shall be practically impossible.

34. These primary conductors, if within a building, must also be furnished with a double-pole switch, or separate switches on the ingoing and return wires and also with automatic double pole cut-out where they enter the building or where they leave the main line, on the pole or in the conduit. The switches above referred to should, if possible, be inclosed in secure and fire-proof boxes outside the building.

35. In the case of isolated plants using the secondary system, the transformers must be placed as near to the dynamos as possible, and all primary wires must be protected in the same manner as is indicated in the second paragraph above.

**INSULATION.**

36. Where there is a possible exposure to water, the first or second coating must be impervious to the fluid.

37. For incandescent lamp fixtures and electrolers, exceptions may be made to the foregoing rule in which the wires can be placed nearer than the prescribed distance to each other, or to other conductors, provided the fixture is fully insulated at the base from house and ground piping, and further provided that a double-pole safety catch is placed at the base of each fixture, or at the nearest branch connection, as may be required by the Inspector of the Board.

38. In all cases when combination (gas and electric) fixtures are used, extra precaution must be used to secure complete and continuous insulation from the gas piping.

**INSULATION IN GENERAL.**

39. It is to be understood as a general or universal rule that all machines, lamps, wires and other parts of electric systems, are to be so constructed, mounted and secured as to insure complete and continuous insulation; with such exceptions only as are hereinbefore stated, and that in no case shall ground circuits be employed, or any part of the system be allowed to come in contact with the earth through gas or water pipes or the like.

**AUTOMATIC SHUNT.**

40. Wherever a current of such high electro-motive force be employed that if concentrated on one lamp or motor of the series it would produce an arc capable of destroying or fusing parts of such lamp, an automatic switch must be introduced in each lamp or motor by which it will be thrown out of circuit before the arc approaches any such dangerous extent.

41. Means by which those in charge of the dynamo electric machines will be warned of any excessive flow of current, or means whereby the same will be automatically checked, must in all cases be provided.

**FUSIBLE OR OTHER AUTOMATIC CUT-OUTS FOR LOW POTENTIAL CIRCUITS.**

42. Wherever a connection is made between a larger and smaller conductor at the entrance to or within a building, some approved automatic device must be introduced into the circuit of the smaller conductor at or close to its junction, by which it shall be interrupted whenever the current passing is in excess of its safe carrying capacity.

43. The safe carrying capacity of a wire is the current which it will convey without becoming painfully warm when grasped for a minute in the closed hand.

**CUT-OUT BOXES OR SWITCHES.**

44. All cut-out boxes or switches which shift, transmit, or break a current, must be mounted on incombustible bases, and so arranged as to close one circuit before they open another, and operate in such a manner that no arc can be formed between the contact surfaces when thrown "on" or "off." It must be so far positive in its action that it can not stop between its extreme positions. It must indicate on inspection whether current is "on" or "off." This rule applies to isolated plants as well as to those connected with central stations.



**NEW YORK UNDERWRITERS' RULES—Continued.****MOTORS.**

45. The rules and regulations under the head of *capacity of wires*, insulation, automatic cut-outs, and switches shall be observed, where electric motors are used, and in addition the motor frames must be properly insulated, and so mounted as to be free from grounds, and each motor shall be provided with an approved switch to prevent an excessive flow of current.

**STORAGE BATTERIES.**

46. When the current for lights or power is taken from storage batteries, the same general regulations are to be observed.

**MEANING OF TECHNICAL TERMS, ETC.**

47. **HIGH POTENTIAL CIRCUITS OR WIRES.**—This term includes all wires arranged with the view of

carrying currents of more than 250 volts difference of potential between any two parts of the system, even if such current be used to run incandescent lamps.

48. **LOW POTENTIAL CURRENTS OR WIRES** are such as do not carry currents of more than 250 volts.

49. Companies furnishing electricity from central stations must enter into an agreement with the New York Board of Fire Underwriters, binding themselves to test their lines for ground connections at least *once* every day (and preferably three times per day), and to report the result of such tests to the Board weekly.

50. The rules and regulations of the Board of Electrical Control and all existing regulations of the local authorities in reference to stringing of wires must be strictly observed.



TRADE MARK.

These Rules, so far as they pertain to insulation, are in every case complied with when Okonite Wire is used.



TABLE SHOWING THE DIFFERENCE BETWEEN WIRE GAUGES  
IN THOUSANDTHS OF AN INCH.

No.	New British Standard.	Brown & Sharpe's or American.	Birming- ham.	London.	No.	New British Standard.	Brown & Sharpe's or American.	Birming- ham.	London.
0000 .....	.460	.460	.454	.454	19 .....	.040	03589	.042	.040
000 .....	.372	.40964	.425	.425	20 .....	.036	.03196	035	.035
00 .....	.348	.36480	.380	.380	21 .....	.032	.02846	.032	.0315
0 .....	.324	.32495	.340	.340	22 .....	.028	.025347	.028	.0295
1 .....	.300	.28930	.300	.300	23 .....	.024	.022571	.025	.027
2 .....	.276	.25763	.284	.284	24 .....	.022	.0201	.022	.025
3 .....	.252	.22942	.259	.259	25 .....	.020	.0179	.020	.023
4 .....	.232	.20431	.238	.238	26 .....	.018	.01594	.018	.0205
5 .....	.212	.18194	.220	.220	27 .....	.0164	.014195	.016	.01875
6 .....	.192	.16202	.203	.203	28 .....	.0148	.012641	.014	.0165
7 .....	.176	.14428	.180	.180	29 .....	.0136	.011257	.013	.0155
8 .....	.160	.12849	.165	.165	30 .....	.0124	.010025	.012	.01375
9 .....	.144	.11443	.148	.148	31 .....	.0116	.008928	.010	.01225
10 .....	.128	.10189	.134	.134	32 .....	.0108	.00795	.009	.01125
11 .....	.116	.09074	.120	.120	33 .....	.0100	.00708	.008	.01025
12 .....	.104	.08081	.109	.109	34 .....	.0092	.0063	.007	.0095
13 .....	.092	.07106	.095	.095	35 .....	.0084	.00561	.005	.0090
14 .....	.080	.06408	.083	.083	36 .....	.0076	.005	.004	.0075
15 .....	.072	.05706	.072	.072	37 .....	.0068	.00445	....	.0065
16 .....	.064	.05082	.065	.065	38 .....	.0060	.003962	....	.00575
17 .....	.056	.04525	.058	.058	39 .....	.0952	.003531	....	.005
18 .....	.048	.04030	.049	.049	40 .....	.0048	.003144	....	.0045

EDISON STANDARD GAUGE.

Gauge Number.	Diameter in Mils = .001 in. = <i>d</i> .	Gauge Number.	Diameter in Mils = .001 in. = <i>d</i> .
360 .....	600.00	90 .....	300.00
340 .....	583.10	85 .....	291.55
320 .....	565.69	80 .....	282.85
300 .....	547.73	75 .....	273.87
280 .....	529.16	70 .....	264.58
260 .....	509.91	65 .....	254.96
240 .....	489.90	60 .....	244.95
220 .....	469.05	55 .....	234.53
200 .....	447.22	50 .....	223.61
190 .....	435.89	45 .....	212.14
180 .....	424.27	40 .....	200.00
170 .....	412.32	35 .....	187.09
160 .....	400.00	30 .....	173.21
150 .....	387.30	25 .....	158.12
140 .....	374.17	20 .....	141.43
130 .....	360.56	15 .....	122.48
120 .....	346.42	12 .....	109.55
110 .....	331.67	8 .....	89.45
100 .....	316.23	5 .....	70.72
95 .....	308.23	3 .....	54.78



TABLE OF DIMENSIONS, WEIGHT AND RESISTANCE OF BARE COPPER WIRE.  
BROWN & SHARPE'S GAUGE THE STANDARD.

American Gauge, Brown & Sharpe's Number.	Diameter, Mils.	AREA.		WEIGHT AND LENGTH, sp. gr. 8.9.			RESISTANCE AT 75° F.			
		Circular mils. (d <sup>2</sup> ) 1 mil. = .001 in.	Square in. (d <sup>2</sup> x .7854)	Lbs. per 1,000 ft.	Lbs. per mile.	Feet per lb.	R Ohms per 1,000 feet.	Ohms per mile.	Feet per Ohm.	Ohms per lb.
0000	460.000	211600.00	166190.	639.33	3375.7	1.56	.04906	.25903	20383.	.000076736
000	409.640	167805.00	131790.	507.01	2677.0	1.97	.06186	.32664	16165.	.00012039
00	364.800	133079.40	104520.	402.09	2123.0	2.49	.07801	.41187	12820.	.00019423
0	324.950	105592.50	82932.	319.04	1684.5	3.13	.09831	.51909	10409.	.00030772
1	289.300	83694.20	65733.	252.88	1335.2	3.95	.12404	.65490	8062.3	.00048994
2	257.630	66373.00	52130.	200.54	1058.8	4.99	.15640	.82582	6393.7	.00078045
3	229.420	52634.00	41339.	159.03	839.68	6.29	.19723	1.0414	5070.2	.0012406
4	204.310	41742.00	32784.	126.12	665.91	7.93	.24869	1.3131	4021.0	.0019721
5	181.940	33102.00	25998.	100.01	528.05	10.00	.31361	1.6558	3188.7	.0031361
6	162.020	26250.50	20617.	79.32	418.81	12.61	.39546	2.0881	2528.7	.0049868
7	144.280	20816.00	16349.	62.90	332.11	15.90	.49871	2.6331	2005.2	.0079294
8	128.490	16509.00	12966.	49.88	263.37	20.05	.62881	3.3201	1590.3	.012608
9	114.430	13594.00	10284.	39.56	208.88	25.28	.79281	4.1860	1261.3	.020042
10	101.890	10381.00	8153.2	31.37	165.63	31.38	1.	5.2800	1000.0	.031380
11	90.742	8234.00	6467.0	24.88	137.37	40.20	1.2607	6.6568	793.18	.050682
12	80.808	6529.90	5128.6	19.73	104.18	50.69	1.5898	8.3940	629.02	.080585
13	71.961	5178.40	4067.1	15.65	82.632	63.91	2.0047	10.585	498.83	.12841
14	64.084	4106.80	3146.9	12.41	65.525	80.59	2.5908	13.680	385.97	.20880
15	57.068	3256.7	2557.8	9.84	51.956	101.63	3.1150	16.477	321.02	.31658
16	50.820	2582.9	2028.6	7.81	41.237	128.14	4.0191	21.221	248.81	.51501
17	45.257	2048.2	1608.6	6.19	32.683	161.59	5.0683	26.761	197.30	.81900
18	40.303	1624.3	1275.7	4.91	25.925	203.76	6.3911	33.745	156.47	1.3023
19	35.390	1252.4	983.64	3.78	20.051	264.26	8.2889	43.765	120.64	2.1904
20	31.961	1021.5	802.28	3.09	16.315	324.00	10.163	53.658	98.401	3.2926
21	28.462	810.10	636.25	2.45	12.936	408.56	12.815	67.660	78.037	5.2355
22	25.347	642.70	504.78	1.94	10.243	515.15	16.152	85.283	61.911	8.3208
23	22.571	509.45	400.12	1.54	8.1312	649.66	20.377	107.59	49.087	13.238
24	20.100	404.01	317.31	1.22	6.4416	819.21	25.695	135.67	38.918	21.050
25	17.900	320.40	251.64	.97	5.1216	1032.96	32.400	171.07	30.864	33.466
26	15.940	254.01	199.50	.77	4.0656	1302.61	40.868	215.79	24.469	35.235
27	14.195	201.50	158.26	.61	3.2208	1642.55	51.519	272.02	19.410	84.644
28	12.641	159.79	125.50	.48	2.5344	2071.22	64.966	343.02	15.393	134.56
29	11.257	126.72	99.526	.38	2.0064	2611.82	81.921	432.54	12.207	213.96
30	10.025	100.5	78.933	.30	1.5840	3293.97	103.30	545.39	9.6812	340.25
31	8.928	79.71	62.604	.24	1.2672	4152.22	127.27	671.99	7.8573	528.45
32	7.950	63.20	49.637	.19	1.0032	5236.66	164.26	867.27	6.0880	860.33
33	7.080	50.13	39.372	.15	.7920	6602.71	207.08	1093.4	4.8290	1367.3
34	6.304	39.74	31.212	.12	.6336	8328.30	261.23	1379.3	3.8281	2175.5
35	5.614	31.52	24.756	.10	.5280	10501.35	329.35	1738.9	3.0363	3458.5
36	5.000	25.00	19.635	.08	.4224	13238.83	415.24	2192.5	2.4082	5497.4
37	4.453	19.83	15.567	.06	.3168	16691.06	523.76	2765.5	1.9093	8742.1
38	3.965	15.72	12.347	.05	.2640	20854.65	660.37	3486.7	1.5143	13772.
39	3.531	12.47	9.7939	.04	.2112	26302.23	832.48	4395.5	1.2012	21896.
40	3.144	9.89	7.7676	.03	.1584	33175.94	1049.7	5542.1	.9527	34823.



TABLE OF DECIMAL EQUIVALENTS OF 8ths, 16ths, 32ds  
AND 64ths OF AN INCH.

8ths.	$\frac{7}{32}=.21875$	$\frac{17}{64}=.265625$
$\frac{1}{8}=.125$	$\frac{9}{32}=.28125$	$\frac{19}{64}=.296875$
$\frac{1}{4}=.25$	$\frac{11}{32}=.34375$	$\frac{21}{64}=.328125$
$\frac{3}{8}=.375$	$\frac{13}{32}=.40625$	$\frac{23}{64}=.359375$
$\frac{1}{2}=.50$	$\frac{15}{32}=.46875$	$\frac{25}{64}=.390625$
$\frac{5}{8}=.625$	$\frac{17}{32}=.53125$	$\frac{27}{64}=.421875$
$\frac{3}{4}=.75$	$\frac{19}{32}=.59375$	$\frac{29}{64}=.453125$
$\frac{7}{8}=.875$	$\frac{21}{32}=.65625$	$\frac{31}{64}=.484375$
	$\frac{23}{32}=.71875$	$\frac{33}{64}=.515625$
	$\frac{25}{32}=.78125$	$\frac{35}{64}=.546875$
	$\frac{27}{32}=.84375$	$\frac{37}{64}=.578125$
	$\frac{29}{32}=.90625$	$\frac{39}{64}=.609375$
	$\frac{31}{32}=.96875$	$\frac{41}{64}=.640625$
		$\frac{43}{64}=.671875$
		$\frac{45}{64}=.703125$
		$\frac{47}{64}=.734375$
		$\frac{49}{64}=.765625$
		$\frac{51}{64}=.796875$
		$\frac{53}{64}=.828125$
		$\frac{55}{64}=.859375$
		$\frac{57}{64}=.890625$
		$\frac{59}{64}=.921875$
		$\frac{61}{64}=.953125$
		$\frac{63}{64}=.984375$

EQUIVALENTS OF WIRES.  
BROWN & SHARPE GAUGE.

0000	2 No. 0	4 No. 3	8 No. 6	16 No. 9	32 No. 12	64 No. 15
000	2 " 1	4 " 4	8 " 7	16 " 10	32 " 13	64 " 16
00	2 " 2	4 " 5	8 " 8	16 " 11	32 " 14	64 " 17
0	2 " 3	4 " 6	8 " 9	16 " 12	32 " 15	64 " 18
1	2 " 4	4 " 7	8 " 10	16 " 13	32 " 16	.....
2	2 " 5	4 " 8	8 " 11	16 " 14	32 " 17	.....
3	2 " 6	4 " 9	8 " 12	16 " 15	32 " 18	.....
4	2 " 7	4 " 10	8 " 13	16 " 16	.....	.....
5	2 " 8	4 " 11	8 " 14	16 " 17	.....	.....
6	2 " 9	4 " 12	8 " 15	16 " 18	.....	.....
7	2 " 10	4 " 13	8 " 16	.....	.....	.....
8	2 " 11	4 " 14	8 " 17	.....	.....	.....
9	2 " 12	4 " 15	8 " 18	.....	.....	.....
10	2 " 13	4 " 16	.....	.....	.....	.....
11	2 " 14	4 " 17	.....	.....	.....	.....
12	2 " 15	4 " 18	.....	.....	.....	.....
13	2 " 16	.....	.....	.....	.....	.....
14	2 " 17	.....	.....	.....	.....	.....
15	2 " 18	.....	.....	.....	.....	.....







THE METRIC SYSTEM.

WEIGHTS.

METRIC DENOMINATIONS AND VALUES.				EQUIVALENTS IN DENOMINATIONS IN USE.		
Names.		No. Grams.		Weight of what quantity of water at maximum density.		Avoirdupois Weight.
Millier or Tonneau	equals	1,000,000	equals	1 cubic meter	equals	2204.6 pounds.
Quintal	"	100,000	"	1 hectoliter	"	220.46 pounds.
Myriagram	"	10,000	"	10 liters	"	22.046 pounds.
Kilogram or Kilo	"	1,000	"	1 liter	"	2.2046 pounds.
Hectogram	"	100	"	1 deciliter	"	3.5274 ounces.
Dekagram	"	10	"	10 cubic centimeters	equal	0.3527 ounce.
Gram	"	1	"	1 cubic centimeter	"	15.432 grains.
Decigram	"	.1	"	.1 cubic centimeter	"	1.5432 grains.
Centigram	"	.01	"	10 cubic millimeters	"	0.1543 grain.
Milligram	"	.001	"	1 cubic millimeter	"	0.0154 grain.

MEASURES OF SURFACE.

METRIC DENOMINATIONS AND VALUES.				EQUIVALENTS IN DENOMINATIONS IN USE.	
Hectare	equals	10,000	square meters	equals	2.471 acres.
Are	"	100	square meters	"	119.6 square yards.
Centare	"	1	square meter	"	1,550 square inches.

MEASURES OF LENGTH.

METRIC DENOMINATIONS AND VALUES.				EQUIVALENTS IN DENOMINATIONS IN USE.	
Myriameter	equals	10,000	meters	equals	6.2137 miles.
Kilometer	"	1,000	meters	"	0.62137 m. or 3,280 feet 10 inches.
Hectameter	"	100	meters	"	328 feet and 1 inch.
Dekameter	"	10	meters	"	393.7 inches.
Meter	"	1	meter	"	39.37 inches.
Decimeter	"	.1	of a meter	"	3.937 inches.
Centimeter	"	.01	of a meter	"	0.3937 inch.
Millimeter	"	.001	of a meter	"	0.0394 inch.

MEASURES OF CAPACITY.

METRIC DENOMINATIONS AND VALUES.				EQUIVALENTS IN DENOMINATIONS IN USE.		
Names.		No. Liters.	Cubic Measure.	Dry Measure.		Wine Measure.
Kiloliter	equals	1,000	1 cubic meter	equals	1.308 cubic yards	264.17 galls.
Hectoliter	"	100	.1 cubic meter	"	2 bush. 3.35 pks.	26.417 galls.
Decaliter	"	10	10 c. decimeters	"	9.08 quarts	2.6417 galls.
Liter	"	1	1 c. decimeter	"	0.908 quart	1.0567 qrts.
Deciliter	"	.1	.1 c. decimeter	"	6.1022 cubic inches	0.845 gill.
Centiliter	"	.01	10 c. centimeters	"	0.6102 cubic inch	0.388 fluid oz.
Milliliter	"	.001	1 c. centimeters	"	0.061 cubic inch	0.27 fluid dr.

MATTHIESON'S DETERMINATION OF THE ELECTRIC CONDUCTIVITIES OF METALS AND THEIR ALLOYS.

ARTICLE.	Resist. in ohms of wire 1 m. long and 1 mm. dia.	Conductivity.	ARTICLE.	Resist. in ohms of wire 1 m. long and 1 mm. dia.	Conductivity.
Silver, annealed.....	0.01937	100.	Nickel, annealed.....	0.1604	12
Silver, drawn.....	0.02103	92.1	Tin, pressed.....	0.1701	11.4
Copper, annealed.....	0.02057	94.1	Lead.....	0.2526	7.6
Copper, drawn.....	0.02014	94.1	Antimony, pressed.....	0.4571	4.2
Gold, annealed.....	0.02350	73	Bismuth.....	1.689	1.1
Gold, drawn.....	0.02697	73			
Aluminium, annealed.....	0.03751	51.6	Alloys:—		
Zinc, rolled.....	0.07244	26.7	Platinum 1, Silver 1 (drawn or annealed)...	0.3140	6.1
Platinum, annealed.....	0.1166	16.6	German Silver (drawn or an'l'd).	0.2695	7.2
Iron, annealed.....	0.1251	15.5	Gold 2, Silver 1.....	0.1399	13.8
Mercurv, liquid.....	1.2247	1.58			



TABLE SHOWING THE WEIGHT, CARRYING CAPACITY AND LOSS IN VOLTS OF DIFFERENT SIZES COPPER WIRE.

Brown & Sharpe's Gauge No.	Diameter.	Lbs. per 1,000 feet bare wire.	Approximate Weight Under-writers' Insulation per 1,000 feet.	Safe current in Amperes.	Loss in Volts per Ampere per 100 feet of line (2 Wire).
0000.....	.46	640.5	825 lbs.	312.	.0098
000.....	.40964	508.5	610 "	262.	.0123
00.....	.3648	402.8	458 "	220.	.0155
0.....	.32495	319.6	385 "	185.	.0196
1.....	.2893	253.4	308 "	156.	.0247
2.....	.25763	201.0	249 "	131.	.0311
3.....	.22942	159.3	201 "	110.	.0392
4.....	.20431	126.4	163 "	92.3	.0495
5.....	.18194	100.2	133 "	77.6	.0624
6.....	.16202	79.46	109 "	65.2	.0787
7.....	.14428	63.01	90 "	54.8	.0992
8.....	.12849	49.98	74 "	46.1	.125
9.....	.11443	39.64	62 "	38.7	.158
10.....	.10189	31.43	52 "	32.5	.199
11.....	.090742	24.93	43 "	27.3	.251
12.....	.080808	19.77	36 "	23.	.316
13.....	.071961	15.68	30 "	19.3	.399
14.....	.064084	12.43	25 "	16.2	.503
15.....	.057068	9.86	21 "	13.6	.634
16.....	.05082	7.82	18 "	11.5	.799
17.....	.045257	6.20	15 "	9.6	1.088
18.....	.040303	4.92	13 "	8.1	1.271

RELATIVE CONDUCTIVITY OF METALS.

Silver.....	100	Platinum.....	16.6	Lead.....	7.6
Copper.....	93	Iron.....	15.6	Antimony.....	4.3
Gold.....	73	Palladium.....	12.5	Mercury.....	1.6
Zinc.....	27	Tin.....	11.4	Bismuth.....	1.2



MELTING POINT, SPECIFIC GRAVITY AND RELATIVE CONDUCTIVITY.

ARTICLE.	Melting Point.	Specific Gravity.	* Relative Conductivity.	Weight per cubic foot, lbs.	Weight per cubic inch, lbs.
Aluminium.....	2,786 Fah.	2.67	54.2	166	.096
Antimony.....	840 “	6.70	3.88	419	.242
Bismuth .....	512 “	9.82	1.2	613	.353
Brass.....about	1,869 “	8.4	.....	524	.3
“ Silicious (25 per cent. zinc) .....	.....	.....	26.49	524	.3
“ (35 per cent. zinc).....	.....	.....	21.15	524	.3
Bronze, Silicum (Telegraphic).....	.....	8.561	98.	534	.308
“ “ (Telephonic).....	.....	.....	35.	534	.308
“ Phosphor (Telephonic).....	.....	.....	29.	534	.308
“ Aluminium (10 per cent.).....	.....	.....	12.6	534	.308
“ Mercurial (Drosnier).....	.....	.....	10.14	534	.308
“ (20 per cent. tin).....	.....	.....	8.4	534	.308
“ Phosphor (10 per cent. tin) .....	.....	.....	6.5	534	.308
Copper, Pure.....	1,996 Fah.	8.889	100.	.....	.....
“ “ Crystallized.....	.....	8.9	99.9	555	.32
“ and Silver Alloy (50 per cent.) .....	.....	8.607	86.65	537	.31
“ Silicic (4 per cent. Silicon) .....	.....	.....	75.	.....	.....
“ Plumbiferous (10 per cent. lead).....	.....	.....	30.	.....	.....
“ Antimonous.....	.....	.....	12.7	.....	.....
“ Arsenical (10 per cent. Arsenic) .....	.....	.....	9.1	.....	.....
German Silver .....	2,000 Fah.	.....	.....	.....	.....
Glass, Flint.....	2,377 “	2.90	.....	.....	.....
Gold.....	2,016 “	19.25	78.	1208	.697
Gold and Silver Alloy (50 per cent.) .....	.....	.....	16.12	.....	.....
Graphite.....	.....	.....	0.069	.....	.....
Gutta Percha.....	212 Fah.	0.98	.....	.....	.....
Iron, Cast.....	2,786 “	7.18	.....	450	.26
“ Wrought .....	3,286 “	7.80	16.	485	.28
Lead, Pure.....	617 “	11.35	8.88	708	.408
Manganese.....about	3,000 “	8.01	.....	.....	.....
Mercury .....	.....	13.596	1.6	849	.489
Nickel, Pure.....	2,800 Fah.	8.5	7.89	.....	.....
Paraffine.....	110 “	1.01	.....	.....	.....
Platinum, Pure.....	3,286 “	21.	10.6	1344	.775
Rubber, Pure.....	212 “	0.93	.....	.....	.....
Silver.....	1,873 “	10.74	100.	654	.377
Tin, with 12 per cent. Sodium.....	.....	.....	46.9	.....	.....
“ Phosphite of.....	.....	.....	17.7	.....	.....
“ Pure, of Banca.....	442 Fah.	7.3	15.45	455	.262
Zinc, Pure.....	773 “	7.2	29.9	437	.252

RULE.—To find the weight of any article, multiply its specific gravity by 62.4 lbs. (the weight of a cubic foot of water), or by .0361 lbs. (the weight of a cubic inch of water.)

RULE.—To find pressure per square inch of water, multiply the height of column, in feet, by 43 lbs.

Pressure of the atmosphere is 14.7 lbs. to the square inch.

Pressure of one foot of water is .4333 lb. to the square inch.

\* Most of these determinations of Relative Conductivity are by L. Weiller, in A. Watt's Electro Deposition of Metals, London.



### PROPERTIES OF THE SPHERE AND CIRCLE.

The surface of a sphere equals the square of the circumference multiplied by 0.3183.

The diameter of a sphere equals the square root of its surface multiplied by 0.56419.

The side of an inscribed cube equals the radius multiplied by 1.1547.

The diameter of a circle equals the square root of the area multiplied by 1.12838.

The diameter of a sphere equals the cube root of its solidity multiplied by 1.2407.

The circumference of a circle equals the diameter multiplied by 3.1416, which is the ratio of the circumference to the diameter.

The area of a triangle equals the base multiplied by one-half of its height.

The diameter of a circle equals the circumference multiplied by 0.31831.

The side of an inscribed equilateral triangle equals the diameter of the circle multiplied by 0.86.

The surface equals the product of the diameter and circumference.

The radius of a circle equals the circumference multiplied by 0.159155.

The circumference of a circle multiplied by 0.282 equals one side of a square of the same area.

The area of a circle equals the square of the radius multiplied by 3.1416.

The square root of the surface of a sphere multiplied by 1.772454 equals the circumference.

The area of a circle equals one-quarter of the diameter multiplied by the circumference.

The area of an ellipse equals the product of both diameters and .7854.

The radius of a circle equals the square root of the area multiplied by 0.56419.

The circumference of a sphere equals the cube root of its solidity multiplied by 3.8978.

The side of a square equals the diameter of a circle of the same area multiplied by 0.8862.

The side of an inscribed square equals the diameter multiplied by 0.7071.

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### TO ASCERTAIN THE WEIGHT OF COPPER, ETC.

To find the number of cubic inches in the piece, multiply by 0.3214, and the product will be the weight in pounds.

Or, multiply the length and breadth (in feet), and that by the pounds per square foot.

Common Rolled Brass is about three per cent lighter than Copper; this percentage varying according to the mixture.

The area of a circle is equal to the square of the diameter multiplied by 0.7854.

The circumference of a circle is equal to the diameter multiplied by 3.1416.

11/14 of diameter gives exactly  $\frac{1}{4}$  circumference.

To find the diameter of a circle when the circumference is given, multiply the circumference by 7 and divide by 22.



**ELECTRICAL UNITS AND FORMULAE.**

The VOLT is the unit of electro-motive force [E].

Electro-motive force, which is the force that moves electricity, is usually written E. M. F., and various writers use it to express potential, difference of potential and electric pressure.

One volt will force an ampere of current through one ohm of resistance. Its value is purely arbitrary, but fixed.

The OHM is the unit of resistance [R].

Its value is not absolutely known, but all electricians in 1884 agreed to consider it, for ten years, as equal to the resistance of a column of pure mercury 1 square millimeter in section and 106 centimeters long at the temperature of melting ice.

One ohm is that resistance through which one ampere of current will flow at a pressure of one volt of E. M. F.

The MEGOHM=1,000,000 ohms.

The AMPERE is the unit of current strength [C]. Its value may be defined as that current which flows through one ohm of resistance when impelled by one volt of E. M. F.

One ampere of current flowing through a bath will deposit 0.0011794 grammes or 0.017253 grains of silver, or 0.00032959 grammes or 0.005084 grains of copper per second.

The COULOMB is the unit of quantity [Q], and is the quantity of electricity passing per second, when the current is one ampere.

The FARAD is the unit of capacity [K], and is that capacity that will contain one coulomb at a potential of one volt.

A condenser of one farad capacity, if charged to two volts, will contain two coulombs, if to 100 volts, 100 coulombs, etc.

The MICROFARAD [Mfd]=one-millionth of a farad.

The JOULE is the unit of work [W]. It is the work done, or heat generated, by a watt in a second. It is equal to .7373 foot-pound.

The WATT is the unit of electrical power [P], and is the power contained in a current of one ampere with an electro-motive force of one volt. 746 watts=one horse-power. A current of 10 amperes, and 74.6 volts will do the work of one horse-power.

The electric pressure is distributed throughout those portions of the circuit which contain no source of E. M. F. according to the resistance of the various parts of the circuit.

COUNTER E. M. F. is like back pressure in hydraulics. Thus, to find the available E. M. F., or the resulting current against a resistance where there is a counter E. M. F., the counter E. M. F. must be deducted. For example: Suppose an accumulator with a resistance of .02 ohm and a C. E. M. F. of 15 volts, and you wish to charge it with a dynamo which gives an E. M. F. of 20 volts at the battery binding posts; there are  $20 - 15 = 5$  volts working through a resistance of .02 of an ohm with consequently a current of 250 amperes. The fall of potential is, however, virtually 20 volts, and not 5 volts, and the power is  $20 \times 250 = 5,000$  watts, and not  $5 \times 250 = 1,250$  watts, as might perhaps be supposed. It is obvious that the C. E. M. F. has acted as a resistance. In the above case  $5 \times 250 = 1,250$  watts were wasted in overcoming the resistance of the accumulator; and the remaining 3,750 watts were stored up in the chemical changes which they brought about in the active material of the accumulator.

MILS=Thousandths of an inch.

$d^2$ =CIRCULAR MILS.

The CIRCULAR MIL is now generally used as the unit of area when considering the cross section of electric conductors, the resistance and weight of copper being inversely proportional to the circular mils.



## TELEGRAPHIC CODE.

For the convenience of our customers we have prepared the following telegraphic code, the idea being to save expense when the telegraph is used. The use of the code in connection with the trade word is easily understood and will be found very convenient in many cases. Example: Joshua, Edmond, Architect. The proper names refer to numbers and orders, and words not proper names will be found in alphabetical order through the book. The message translated reads: "Have you in stock one thousand one hundred and ten volt, twenty-five candle power Edison lamps?"

Adam.....	1	Cornelius.....	300
Abraham .....	2	Cuthbert.....	350
Absalom.....	3	Daniel.....	400
Adolphus.....	4	David.....	450
Adrian .....	5	Denis.....	500
Albert.....	6	Donald .....	600
Alexander .....	7	Duncan.....	700
Alfred .....	8	Ebenezer.....	800
Allan.....	9	Edgar.....	900
Algernon ...	10	Edmond.....	1,000
Ambrose.....	11	Edward..	1,500
Andrew.....	12	Edwin..	2,000
Angus.....	13	Egbert.....	2,500
Anthony....	14	Elias.....	3,000
Archibald.....	15	Elijah.....	3,500
Arthur .....	16	Emile ...	4,000
Asa..	17	Emanuel.....	4,500
Augustus .....	18	Enoch .....	5,000
Austin.....	19	Eustace.....	6,000
Baldwin. ....	20	Ezekiel.....	7,000
Barnabas.....	25	Ezra .....	8,000
Basil .....	30	Ferdinand.....	9,000
Benedict.....	35	Fergus .....	10,000
Benjamin.....	40	Francis.....	15,000
Bernard .....	45	Frederick.....	20,000
Bertram.....	50	Gabriel.....	25,000
Caleb .....	60	George .....	30,000
Cecil .....	75	Gerard .....	35,000
Charles.....	100	Giles .....	40,000
Christopher.....	125	Godfrey.....	45,000
Claude .	150	Gustavus .	50,000
Clement .....	175	Guy.....	75,000
Conrad .....	200	Harold.....	100,000
Constantine.....	250		



**TELEGRAPHIC CODE—Continued.****QUESTIONS AND ANSWERS.**

Herbert—At what price can you furnish—?

Henry—Quote us by telegraph.

Horatio—Quote us by return mail.

Hosea—Telegraph lowest price and how soon can ship?

Hugh—Please give quantities desired.

Humphrey—Cannot better quotation.

Isaac—We quote.

Israel—We quote for immediate telegraphic acceptance.

Jacob—We quote in response to your inquiry of—

James—We cannot accept at the price.

Jeremiah—We will accept your order.

John—We will accept your order and make immediate shipment.

Jonas—We do not make the article desired.

Jonathan—Can you ship immediately?

Joseph—Can you ship in—?

Joshua—Have you in stock?

Josiah—Have you in stock? If not, how soon can you ship?

Judah—How soon can you ship?

Lawrence—How soon can you make first shipment and how fast remainder?

Leonard—How much can you ship at once?

Leopold—Can ship at once from stock if advised immediately?

Lewis—Can ship at once on receipt of order.

**LETTERS AND TELEGRAMS.**

Luke—Answer by mail.

Malcolm—Referring to our letter of—

Marcus—Referring to your letter of—

Marmaduke—We write you fully to-day.

Martin—We have no letter from you.

Matthew—Will write you fully in a day or so.

Maurice—Write giving full particulars.

Michael—See our letter of to-day giving full particulars.

Moses—Answer by telegraph.

Nathaniel—Referring to our telegram of—

Nicholas—Referring to your telegram of—

Octavius—Telegraph by night message.

Oliver—Telegraph immediately.

Oscar—Telegraph reply soon as possible.

Otho—We have no telegram from you.

Patrick—Why do you not telegraph?

Paul—Why do you not telegraph answer to inquiry of—?

Percy—Can ship in—

Peter—Can begin shipping at once and complete in—

Ralph—Can ship within one week from receipt of order if advised at once.

Randolph—Can ship within two weeks from receipt of order if advised at once.

Raphael—Have none in stock.

**ORDERS.**

Reginald—Add to our order of—

Reuben—Change our order of—

Richard—Hurry forward goods on our order of—

Robert—Have you shipped goods on our order? If not, when will you?

Roger—Enter order if you can ship in—

Roland—Hold for instructions our order of—

Tommy—If you cannot ship in time named, advise by telegraph.

Rupert—Instructions by mail.

Samson—Prepay freight.

Samuel—Shipping instructions will be sent you.

Seth—Ship immediately.

Sidney—Ship as soon as possible.

Silas—Ship by express.

Simon—Ship by fast freight.

Solomon—Ship quickest route.

Stephen—Ship cheapest route.

Theobald—Send tracer immediately for shipment of—

Theodore—Wait receipt of letter before proceeding with order.

Thomas—First shipment will be made.

Timothy—Have entered order and will ship.

Titus—Have sent tracer as requested.

Toby—Too late to cancel order.

Valentine—We ship you to-day.

Walter—We expect to ship.

Wilfred—We will complete your order.

William—We will ship.

Agnes—We have shipped.

Alice—We have completed your order.

Amelia—We have entered order.

Ann—Telegraph shipping instructions for your order of—



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